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STEEL

*For forty-eight Years—IRON TRADE REVIEW*

PRODUCTION • PROCESSING • DISTRIBUTION • USE

# The Week in Perspective

LABOR day fitted opportunely into the march of events this year. It afforded organized labor a perch from which to survey its extraordinary gains under the aegis of the recovery program. It climaxed probably the most strenuous week in the history of living iron and steel sales executives, their application to new schedules of prices, basing points, extras and differentials occasioned by the iron and steel code being rigorous.

**Producers File; Consumers Ponder**

Producers having filed and made effective their schedules (p.11), the cup now passes to consumers. Most base prices continue unchanged for the remainder of the quarter; what the fourth quarter brings forth is still obscure, though few revisions are probable. Whatever changes in prices have been made have been upward; numerous revisions of extras and differentials are calculated to requite the mills for added expense. Through the discipline of NRA, the market becomes a sellers' one.

**Codes Lead PWA in Recovery Derby**

Labor day also is a turning point for Washington, which is reviewing the progress of NRA (p. 19). General Johnson is behind in his program in codifying industry, yet has accomplished wonders considering the task. PWA is a laggard as projects become enmeshed in red tape. . . . Manganese arises again to plague steel producers as domestic miners petition (p. 20) the President to spur use of the home product. . . . Washington also takes encouragement from a survey on freight cars, sensing (p. 20) some buying.

**Seasonal Gain Stymied by Schedules**

Normally, Labor day is a vestibule leading iron and steel into a seasonal pickup, but this year the code schedules compel buyers to pause until they get their bearings. For the moment, demand for iron and steel products is negligible (p. 49), though hopes for a late fall upturn are strong. . . . Reflecting this, steelworks operations declined (p. 17) three points to 45 per cent; may go almost to 40 this week. . . . Pig iron, spurred by the lighting of 15 stacks in July, continued to expand in production in August (p. 17), the daily rate improving 1.5 per cent to 59,011 tons, but a net loss of 7 in active stacks as of Aug. 31, to a total of 99, presages some curtailment in September . . . . A 12,000-ton sale in New England is the largest transaction (p. 60) of the week in pig iron.

**Use Abrasives to "Chip" Billets**

A large steel company cleans billets preparatory to chipping at a rate of more than 20 tons

*Acme Photo*

*Gentlemen, the President! The old art of sandblasting a picture on marble, copper and other metals has here been adapted to etch the likeness of Franklin D. Roosevelt on stainless steel made by Republic Steel Corp. The artist, in helmet, is Pierre Edy. Plate exhibited by United States Plywood Co. at Century of Progress*

per hour by using a recently developed machine which, utilizing centrifugal, tangential and air-dynamic forces rather than compressed air, impinges an abrasive against the work (p. 32). Billets feed into the machine on motor-driven rolls at about 60 feet per minute. Not only is the process proving more economical than pickling, but it facilitates subsequent chipping. . . . Ingot molds containing 1.50 per cent manganese, low phosphorus and sulphur, are good for upward of 200 heats, a Pittsburgh district steelmaker is finding (p. 43).

**Deforming a Plastic Body**

When deformation of a plastic body is carried out with a certain rapidity, the resistance is greater than that corresponding to the static shearing strength. This increase, called velocity effect, is caused by the viscosity of the plastic mass. Velocity effect increases with speed and increases more rapidly at low than at high speeds; investigations on hot rolling of steel at high speeds show that the effect is directly proportional to the speed (p. 38). . . . Inherent advantages of steel are responsible for its use in mounting electrical equipment (p. 30). By placing such apparatus as switchgears in welded cradles totally enclosed in sheet steel, economy, neat appearance and safety to operators are derived.

**Parking Towers a Market for Steel**

If automobile parking towers are utilized to eliminate street parking in large cities and congested areas, steel will be the beneficiary. A 16-car tower demonstrated at A Century of Progress (p. 34) stands 75 feet high and for its construction required 75 tons of steel, principally structural shapes. . . . Some automobile manufacturers now are using instead of lead base paint a new rubber base paint (p. 37) which after drying will withstand bending, crumpling, doubling or rolling without cracking.

**Motor as a Braking Medium**

It would seem that the series motor is not constitutionally adaptable to lowering heavy crane loads, but a circuit has been adapted (p. 27) which turns this motor into an ideal dynamic braking medium, making it superior to almost all motors for operation of this function. This circuit, which involves shunting the field circuit across the armature circuit, now is used on practically all crane hoist series motor controllers. . . . Twenty technical sessions are scheduled for the National Metal congress in Detroit early in October; among sponsors are the American Society of Mechanical Engineers and the Wire association (p. 32). Another participating group, American Society for Steel Treating, proposes changing its name to American Metals society (p. 32).

# The VOICE of INDUSTRY

*Communications appearing here do not necessarily reflect the opinion of* STEEL *or of its editors.*

## Selling Steel's Good Record to Public

*To the Editor:*

Congratulations on the editorial in the Aug. 21 issue. The steel industry does not seem to know the value of favorable public opinion.

Why is it that the automobile industry seldom is damned before the public while the steel industry always is under fire?

The iron and steel industry has a good record. Why isn't it made available to the ordinary layman?

MANUFACTURER

PENNSYLVANIA

## A Novel Suggestion for Wage Rates

*To the Editor:*

Now that the NRA activities are all cluttered up with hundreds of codes, each presenting minimum wage schedules, maximum hours, etc., with more or less objection on the part of Union labor to any and all codes which industry may present, why wouldn't it be a good idea to suggest to the NRA officials the following line of action for the establishment of wages and hours which will put employees of various industries in proper relationship to each other:

1. Let the NRA summon to Washington the heads of all national and international labor unions, including building trades, railroad brotherhoods, American Federation of Labor, miners, automotive employees, including Henry Ford's, or others.

2. Require these heads to set up and agree upon basic wage levels for each unionized trade.

3. Have the basic levels so set up, graduated to the relative costs of living in various sections of the country according to the statistics available.

4. Ask all of the industries to adopt Labor's suggestions as to these wage scales determined in the above manner and incorporate in their industrial codes.

5. Authorize industries to calculate new costs in accordance with the then established wage levels; quote new prices accordingly and expect their acceptance by customers whether or not it changes present contracts.

While there are probably thousands of separate trades and classifications of labor, the basic rates of pay might well be set at the President's figures of 40c per hour minimum and up to $1.00 or more per hour according to the relative education, apprenticeship, experience and skill required to become a master workman in each trade. Certainly no one should be better able than the Union heads themselves to get into a good fight on the relative values of their respective trades. The NRA might well give them a limit of a week in which to prepare the basic wage scale. Industry could well afford to step aside with its ideas and adopt the result of Union Labor's own scale. A good time would be had by all.

This suggestion is submitted seriously in the belief that it could be made to work, and offers a better solution than can be obtained quickly by any other method.

MANUFACTURER

*Ohio*

# Industry Working Overtime to Master New Price Schedules

ALL roads in the steel industry led to New York last week. And they were increasingly traversed as the days progressed, beginning with Monday, when producers began filing their prices in earnest so as to make the Tuesday, Aug. 29, deadline, under the 10-day provision of the code, and continuing on to Friday, when a general meeting of the executives of the entire industry was held at the Institute offices.

It was a week marked by intensive conferences and long hours, with a multiplicity of problems that literally touched every phase of the industry. It was featured by the first meeting of the Institute board under the code—30 members in all, plus three NRA representatives and at which plans were formulated for the operation of the industry under the code.

### Sales Await Clarification

Meanwhile, throughout the industrial belt of the nation, negotiations for the sale of iron and steel products were complicated by the confusion arising from inability to unscramble the mass of new schedules filed with the institute. This confusion will continue until the new price structure can be interpreted, codified and reduced to normal routine.

At the general meeting of the American Iron and Steel institute held on Friday, the more than 200 executives of iron and steel producing companies pledged adherence to the code recently approved Aug. 19 by executive order of President Roosevelt and indorsed the plans proposed by the board of directors for the operation of the institute under the terms of the code.

Many of the provisions of the code were discussed at length with the view of clarifying their meaning.

Most of the expected schedules now have been filed. The few exceptions are companies which have not yet signed the code. Representatives of companies which are not signatory to the code attended the meeting on Friday and some of them indicated that their companies will sign immediately. It was revealed that a number of companies have signed the code since the original list was filed in Washington on July 31. The American Iron and Steel institute will file a new and revised list with NRA within the next few days.

The administrative committee of the institute comprises W. A. Irvin, president, United States Steel Corp., chairman; L. E. Block, president, Inland Steel Co.; T. M. Girdler, president, Republic Steel Corp.; E. G. Grace, president, Bethlehem Steel Co.; Hugh Morrow, president, Sloss-Sheffield Steel & Iron Co.; E. T. Weir, chairman, National Steel Corp.; and W. J. Filbert, vice chairman, finance committee of the United States Steel Corp.

The "organization" meeting of the directors last Tuesday, at which K. E. Simpson, deputy administrator, Dr. Alexander Sachs, economic adviser to the recovery administration, and Donald Richberg, general counsel to the administration, were present as public representatives, resulted in the appointment of chairmen of the following committees; General administrative committee, William A. Irvin, president of the United States Steel Corp., chairman; Labor, Frank Purnell, president of Youngstown Sheet & Tube Co.; Commercial matters, Samuel E. Hackett, vice president, Jones & Laughlin Steel Corp.; and committee on statistics, W. J. Filbert, vice chairman of the finance committee of the United States Steel Corp.

Each chairman is to select his own committeemen. A transportation committee also is being formed.

With approximately 160 producers of iron and steel products filing schedules with the American Iron and Steel institute, as provided for in the code, it has been impossible to classify and correlate the filed prices in the brief period which has elapsed since Aug. 29, the last day prescribed for filing. As a matter of fact, owing to the difficulty of mastering all of the intricate provisions of the code, companies continued to file prices as late as Friday of last week.

### Base Price Only the Start

Under these conditions it is not possible to quote the market with certainty. Up to the date of writing (Friday evening) no classification or other statement of filed prices was forthcoming from the institute. The only available guide to the new prices, therefore, was that afforded by the schedules filed by the various producers.

Examination of the new prices filed by typical steel companies indicates that the changes made under the terms of the code are more drastic than had been anticipated. While base prices have not been revised radically from previous quotations, certain changes in extras, quantity differentials, etc., tend to alter the entire price structure to a marked extent. The changes in classifications of products, basing points, method of figuring delivery prices, in quantity and quality extras and in many other respects make it necessary, in the case of the majority of products, to go beyond the base or delivery price in order to determine how the old quotations are affected.

Because of these sweeping revisions in price and method, STEEL this week presents the schedules of several important iron and steel products as filed by typical companies. In many cases extras are published where it is felt that they will help to clarify the base price. The schedules of these and other products will be published more fully later after an opportunity has been had for examining all prices filed with the institute.

The price schedules filed on most of the semifinished and finished steel products include the following statement, which is a summation of the method of quoting prices prescribed in the recently approved steel code:

### What Makes Delivered Price

Prices will be quoted f.o.b. delivery point by adding to the basing point base price which governs the published all-rail tariff freight from basing point to point of delivery, except at Gulf or Pacific Coast ports, where prices will be f.o.b. cars dock. When the delivery point is at a basing point the published switching charges from the producing plant at the basing point to the delivery point will be added to the basing point base price to determine the delivered base price.

In the case of product described above intended for fabrication for an identified structure, for the purpose of establishing the delivered prices thereof, the place of delivery shall be deemed to be the freight station at or nearest to the place to which such structure is to be erected and not the shop of the fabricator.

Prices quoted as outlined in the preceding paragraphs will apply on

(1) Contracts for specified or identified projects made during the period the above mentioned base prices are in effect.

(2) Contracts or sales made during the period the above mentioned base prices are in effect, which are to be shipped complete before the end of this calendar quarter year ending not more than four months after the date of the making of such contract or sale, specification against such contracts or sales to be received not later than approximately 15 days prior to the end of the calendar quarter.

Adjustment will be made in price of this product for use by the purchaser thereof in the manufacture of articles for shipment in export trade, the amount thereof to be determined at the time of quoting, but such adjustment will not be made until after the manufactured articles which have been shipped for export and proper evidence thereof shall have been furnished to show that such material, so purchased, was used for that purpose.

The date of the invoice will be the date of shipment. Discount will be al-

lowed on the basing point value of the material.

**Maximum Rate of Discount for Early Payment**

On shipments made to Pacific Coast ports; discount ½ of 1 per cent in 25 days from date of invoice.

On shipments to all other points; discount, ½ of 1 per cent in 10 days from date of invoice; providing, however, that where the volume of shipments warrants, the buyer may be allowed such discount of ½ of 1 per cent for payment within 10 days on the basis of settlements three times in each month as follows:

(1) On invoices for products dated from the 1st to the 10th, inclusive, in any month, such discount may be allowed on payment of such invoices on or before the 20th of the month.

(2) On invoices for products dated from the 11th to the 20th, inclusive, in any month, such discount may be allowed on such invoices on or before the 30th of such month; and

(3) On invoices for products dated from the 21st to the end of any month, such discount may be allowed on payment of such invoices on or before the 10th of the next following month.

**Maximum Period of Free Time**

On shipments made to Pacific Coast ports: free credit 45 days from date of invoice.

On shipments to all other points; free credit 30 days from date of invoice.

**Another important feature of the new schedules is the attempt made to clarify the classifications of iron and steel products. A case in point is the new classification of bars, plates, strip and sheets, shown elsewhere on this page. In the bar card, an attempt is made to clear up the ambiguous situation in regard to "commercial quality" and "forging quality" bars.**

## Bars, Plates, Sheets and Strip Classified

| Hot Rolled To Be Sold As: | 3½ in. and narrower | 3⅛ in. to 6 in. | 6⅛ in. to 23¾ in. | 24 in. to 48 in. | 48⅛ in. and wider |
|---|---|---|---|---|---|
| Bars | .250 in. and thicker | .250 in. and thicker | ..... | ..... | ..... |
| Plates | ..... | ..... | .250 in. and thicker | .250 in. and thicker | .1875 in. and thicker |
| Hot Rolled Strip | .249 in. to .025 in. | .249 in. to .035 in. | .249 in. to .059 in. | ..... | ..... |
| Hot Rolled Sheets | ..... | ..... | ..... | .249 in. to .059 in. (16 ga.) | .1874 in. to .059 in. (16 ga.) |
| Hot Rolled Annealed Sheets | .024 in. and thinner (24 ga.) | .034 in. and thinner (21 ga.) | .058 in. and thinner (17 ga.) | .058 in. and thinner (17 ga.) | .058 in. and thinner (17 ga.) |
| Cold Rolled To Be Sold As: | 12 in. and narrower | | Over 12 in. to 23¾ in., inc. | 24 in. and wider | |
| Cold Rolled Strip | all thicknesses | | .029 in. and thicker | ..... | |
| Cold Rolled Sheets | ..... | | .028 in. and thinner | all thicknesses and gages | |

NOTE: All cold rolled material in coils, all gages and in widths up to and including 23¾ in. to be sold on cold rolled strip base and card of extras.

# Structural Shapes

Beams, wide flange sections and channels 3 inches and over in depth; angles 3 inches an over on one or both legs, ¼-inch thick and heavier; Zees three inches and over in depth; Tees three inches and over on one or more legs, ¼-inch thick and heavier; bulb angles and special sections for cars, ships and other purposes, as described in the schedule of extras, are classified as structural shapes.

Included among the base prices filed are the following: 1.60c, base, Pittsburgh; 1.65c, base, Chicago; 2.00c, cars dock, Gulf ports; and 2.15c, cars dock, Pacific coast ports.

Prices filed for wide flange sections include 1.60c, Pittsburgh; 1.65c, Chicago; 2.10c, cars dock, Gulf ports; and 2.25c, cars dock, Pacific coast ports.

**Base**

Base price applies to structural shapes as follows:

Standard beams and channels
.....3 in. to 15 in. inc.

Angles
3 in. to 6 in. inc., on one or both legs; ¼-in. gage and heavier. (See exceptions.

Zees .....3 in. to 6 in., inc.

Length.....5 ft. to and including 80 ft.

Quality
Conforming to lates issue of A. S. T. M. specifications covering "structural steel for either bridges or buildings or Association of American Steel Manufacturers technical committees standard specification for structural steel."

Inspection
Commercial based on standard specifications.

**Extras**

All extras are given in cents per pound and are to be added to the base price.

**Size and section extras**

Standard Sections

| | |
|---|---|
| Standard beams and channels over 15 inches | .10c |
| Standard angles over 6 inches on both legs | .10c |
| Angles taking special extras: | |
| 6 x 6 x 5/16 | .10c |
| 6 x 5 x 5/16 | .10c |
| 6 x 4 x 5/16 | .10c |
| 6 x 3½ x 5/16 | .10c |
| 5 x 3½ x ¼ | .15c |
| 5 x 3 x ¼ | .15c |
| 4 x 3½ x ¼ | .25c |
| 4 x 4 x 3/16 | .30c |
| 3½ x 3½ x 3/16 | .30c |
| 4 x 3½ x 3/16 | .30c |
| 4 x 3 x 3/16 | .30c |
| 3½ x 3 x 3/16 | .30c |
| 3½ x 2½ x 3/16 | .30c |
| 3 x 3 x 3/16 | .35c |
| 3 x 3 x ⅛ | .50c |
| H-Beams, Sections 1, H2, H3, H3a, H4 | .10c |
| 8" Standard mill beam B39 | .05c |
| 9" Standard mill beam B40 | .05c |
| Tees, structural sizes 3" to 6" on one or both legs, ¼" thick and over (excepting elevator and conductor-rail tees) | .10c |
| Tees, 6½ x 6½, T-40 | .20c |
| Bulb angles | .30c |
| Car channel, 4" C 200 | .10c |
| A R A center sill, 12", B 112 | .15c |
| A R A side sill, 7", C 211 | .15c |

**Quality Extras**

| | |
|---|---|
| Hull material, subject to U. S. Navy specifications for medium or soft steel 46-S-1f | .10c |
| High Tensile Hull Steel, subject to U. S. Navy spec. | 1.00c |
| Structural silicon steel—A. S .T.M. Specification A-94: | |
| Standard structural shapes | .60c |
| Wide flange sections | .75c |
| Copper steel (copper .20 min.) | .10c |
| Carbon (specified) open-hearth steel .10 to .25 | no extra |
| Carbon (specified) open-hearth steel, .26 to .60 | .05c |

# Plates

Plates are described as: Hot rolled flat steel products over 6 in. to 48 in. wide, inc., ¼ in. thick or 10.2 lbs. per sq. ft. and heavier; over 48 in. wide, 3/16 in. thick or 7.65 lbs. per sq. ft. and heavier.

Prices filed include 1.60c, base Pittsburgh; 1.65c, base Chicago; 2.00c, cars dock Gulf ports; and 2.15c, Pacific coast ports.

All extras are given in cents per pound and are to be added to the base price. Each extra listed herein is a separate and distinct extra and does not, unless otherwise noted, include or absorb any other extra listed. Full extra applying over the base price is the total of all extras applicable to the specific requirements of the order.

**Extras for Width or Diameter**

*These remain unchanged from the standard extras used previously.*

Gage and cutting extras where applicable are in addition to extras for widths or diameters.

**Gage Extras**

Plates over 48 in. to 72 in.

| | |
|---|---|
| Plates less than ¼ in. gage and including 3/16 in.; or lighter than 10.2 lbs. per sq. ft. to and including 7.65 lbs. per sq. ft. | .20c |

Plates Over 72 In. Wide

| | |
|---|---|
| Plates less than ¼ in. gage to and including 3/16 in.; or lighter than 11 lbs. per sq. ft., to but not including 7.65 lbs. per sq. ft. | .20c |
| Plates ordered 7.65 lbs per sq. ft. | .30c |

Plates All Widths

| | |
|---|---|
| Plates over 2 in. thick subject to physical test requirements. | |
| Over 2 in. thick up to and including 4 in. | .50c |
| Over 4 in. thick | .75c |

**Length or Diameter Extras**

Length or diameter extras remain unchanged from the card previously used.

**Sketches and Circles**

| | |
|---|---|
| (Not requiring re-entrant cutting). | |
| Regular sketches (with not more than 4 straight edges) including straight taper plates | .20c |
| Irregular sketches (with more than 4 straight edges | .50c |
| Sketches furnished to a radius | .50c |
| Circles | .50c |
| Semicircles | .50c |

Extras for sketches requiring re-entrant cutting quoted on application.

When sketches or circles are required to be flame cut, foregoing extras will apply in addition to regular flame cutting extras.

**Flame Cutting to Length or Diameter**

*Extras for flame cutting are identical with those on the old card except that whereas the old extras were for plates from 1 in. to 2 in. inclusive in thickness, the present card calls for extras for plates "up to 2 in. inclusive in thickness."*

**Quality Extras**

carbon (specified) open-hearth steel, 0.10 to 0.25....No extra
carbon (specified) open-hearth steel, 0.26 to 0.40.... .10c
Carbon (specified) open hearth steel, 0.41 to 0.60..... .25c

The mean of the range of carbon shall determine the extra. The carbon range shall be not less than 10 points.

| | |
|---|---|
| Copper steel (copper 0.20 min.) | .10c |
| Pressing steel (not flange steel for boilers) | .10c |
| Flange steel, boiler quality | .15c |
| Ordinary firebox steel | .20c |
| Stillbottom steel | .30c |
| Locomotive firebox steel | .50c |
| Structural silicon steel, A.S.T.M. A-94 | .75c |
| Hull material to U. S. Navy specifications for medium or soft steel 48-S-5-D | .25c |
| Hull plates to American Bureau of Shipping or equivalent specifications required to stand cold flanging | .15c |
| High tensile hull steel to U. S. Navy specifications or equivalent | 1.00c |
| Boiler steel to U. S. Navy specifications, classes A and B | 1.50c |
| Marine steel | 1.50c |

**Extras for Special Requirements**

*Extras for special requirements remain unchanged except that the following paragraphs are added under "Special Notes:"*

"When physical tests are specified beyond those called for in the A. S. T. M. specifications of a similar grade, and other provided for on this card an extra of .10c per pound shall apply for each additional test."

"All charges made for inspection (other than usual mill facilities) by Lloyd's, American Bureau of Shipping, commercial inspection companies and others, shall be arranged for by the buyer and shall be for his account."

*The established extra for normalizing for relieving rolling or cutting stresses, .50c, is retained.*

# Bars, Small Shapes

Hot Rolled Bars and Small Shapes

Base price at Pittsburgh, 1.60c; Chicago and Gary, 1.65c; Gulf ports, f.o.b. cars, 2.00c; Pacific coast ports 2.15c f.o.b. cars.

No changes in size extras for rounds and squares, flats, equal leg angles, unequal leg angles, channels, tees, hexagons, ovals, half ovals and half rounds —solid.

Size extras on flat spring steel are unchanged, except that 1 to 3 inches No. 5 is now 15 cents over the base and 1 to 3 inches x No. 6 is now 20 cents over the base.

Size extras on round and square spring steel are unchanged.

Automobile bumper steel bars: Front or impact bars (including special sections) 15 cents per pound extra for section and quality, plus extras for chemical specification; other bumper bars subject to automobile spring steel extras, plus extras for chemical specification.

Silico manganese spring steel extras for quality and chemical specifications are 65 cents per pound for flats and 90 cents for rounds and squares. Automobile spring steel size extras apply, plus bar extras for cutting and quantity. Any quality requirements other than chemical and brinnel hardness limits are 50 cents per pound.

Tube rounds take an extra of 0.25 cents per pound for quality, plus bar card extras for chemical specifications and size extras.

**Quantity Extras**

Lump sum extras are now identical at Pittsburgh and Chicago and an extra is now charged for quantities from 4000 to 6000 pounds. These extras are $2 for 4000 pounds to 6000 pounds, $4 for 2000 pounds to 3999 pounds, $8 for 1000 pounds to 1999 pounds and $12 for quantities under 1000 pounds.

Extras for cutting to specified lengths other than machine cutting, and machine cutting to specified lengths on rounds and squares 1½ inches and larger are unchanged.

Applicable to Birmingham producing territory, the quantity differential on quantities from 1000 pounds to 2000 pounds is 25 cents and on quantities less than 1000 pounds it is 50 cents.

Extras for Machine Straightening

**Extras for Machine Straightening** when specified by customers are as follows:

Rounds: ⅜ inch up to ½ inch inclusive, 20 cents per pound; over ½ inch up to 1 inch inclusive, 20 cents; over 1 inch up to 1½ inches inclusive, 15 cents; over 1½ inches up to 2 inches inclusive, 10 cents; over 2 inches, no charge.

Squares: ⅜ inch up to ½ inch inclusive, 20 cents per pound; over ½ inch up to 1 inch inclusive, 20 cents; over 1 inch up to 1½ inches inclusive, 15 cents; over 1½ inches up to 2 inches inclusive, 10 cents; over 2 inches, 10 cents.

Hexagons: up to 1 inch inclusive, 30 cents; over 1 inch up to 1½ inches inclusive, 30 cents; over 1½ inches up to 2 inches inclusive, 20 cents; over 2 inches 20 cents.

Flats lighter than ¼ lb. per foot, 30 cents; ¼ lb. per foot and heavier up to ½ lb. inclusive, 25 cents; over ½ lb. per foot and heavier up to ¾ lb. inclusive, 20 cents; over ¾ lb. per foot and heavier up to 2 lbs. inclusive, 15 cents; over 2 lbs. per foot, 10 cents.

**Quality Classifications**

Quality classifications for hot rolled bar steel have been set up as follows:

COMMERCIAL QUALITY BARS: This quality shall be defined as hot-rolled carbon steel bars suitable for general commercial purposes and produced in accordance with good mill practice. Standard chemical ranges may be specified, subject to ladle analysis only. Bars shall be free from defects which would be injurious for general or ordinary purposes. If subjected to special processing such as forging, cold working or heat treating, this shall be done at user's risk.

FORGING QUALITY BARS: This quality shall be defined as hot-rolled carbon steel bars of specified composition, in the manufacture of which special precautions are taken to produce material suitable for forging, heat treating, or similar purposes in which uniformity of composition and freedom from injurious defects are essential. Standard chemical ranges shall be specified subject to ladle and check analysis. Check analysis shall be subject to manufacturers' standard permissible variations, procedure II. The purchaser shall inform the manufacturer as to the kind of work and type of forging for which the steel is required. Bars shall be rolled from billets with special discards or equivalent precautions against piping or excessive segregations and prepared by selection, chipping or other methods looking to the elimination of seams and surface defects of such extent as to become injurious in the fabricated part for which the material is required.

SPECIAL REQUIREMENTS OF QUALITY BARS: This quality shall be defined as hot-rolled carbon steel bars subject to special restrictions as agreed upon between manufacturer and consumer, such as the amount of discard, extra restrictive requirements on check analysis, metallographic examinations, guaranteed results on heat treatment, etc. This classification corresponds to a class heretofore designated as guaranteed forging steel.

Commercial quality bars and resulphurized bolt and nut stock bars take the base price, forging quality bars are 0.25 cents per pound up and special requirement quality bars are 0.50 cents up.

**Extras for Chemical Specifications**

Extras for chemical specification for bessemer and open-hearth steel are unchanged for carbon, silicon, phosphorus and copper. On manganese a new range is introduced where the extra is 0.65 cents for 1.51 to 2 per cent. A new classification in sulphur is 0.25 cents for 0.21 to 0.30 minimum, inclusive.

Special extras have been set up as follows: Annealing or normalizing, 1.00c; pipe or box annealing, 1.50c; heat treating, 1.50c; special carburizing steel, 0.50c; pickling, 0.15c; oiling, 0.10c; pickling and liming, 0.25c; and pickling and oiling, 0.25c.

# Concrete Bars

Plain and deformed bars for concrete reinforcement are designated in the new price schedule as "new billet carbon hot rolled steel of recognized standard grades to be used for concrete reinforcement in deformed or plain sections, as described in the classification of extras." There will be no carbon extras for intermidate or hard grades.

Base prices filed are 1.80c, Pittsburgh; 1.85c, Youngstown and other basing points; 2.20c, Gulf ports and 2.35c, Pacific coast ports.

Those determined by the code of fair competition of the iron and steel industry to be recognized distributors (jobbers) of reinforcing bars, maintaining warehouse stock, established at the date

of approval of the code, will be quoted 20c per 100 pounds ($4.00 per net ton) under the base prices hereinbefore enumerated.

*Size extras remain unchanged.*

Note: Extra for cutting to lengths 60 in. and over will not be assessed under the following conditions:

(1) Provided shipment of shorts not exceeding 10 per cent of the total quantity ordered is permitted

or

(2) Provided leeway in length is permitted as follows:

| Lengths | Leeway |
|---|---|
| 5 ft. to 30 ft., inc. | 2 ft. |
| Over 30 ft. to 40 ft., inc. | 3 ft. |
| Over 40 ft. | 5 ft. |

# Hot Rolled Strip

Hot rolled carbon open-hearth and/or bessemer finished steel as produced on strip mills, known as flats under ¼ inch, as described in the attached classification of extras and within the following ranges:

| Width | Thickness |
|---|---|
| Up to and inc. 3½ in. | .025 in. to and inc. .249 in. |
| 3-9/16 in. to and inc. 6 in. | .035 in. to and inc. .249 in. |
| 6-1/16 in. to and inc. 23-15/16 in | .061 in. to and inc. .249 in. |

The base prices, subject to conditions of sale and classification of extras attached will become effective Aug. 28, 1933.

| Basing Point: | Base Price Per lb. |
|---|---|
| Pittsburgh | 1.65c |
| Chicago | 1.75c |

*(Width, slitting, pickling and cutting extras unchanged.)*

### Quality Extras

Tack plate quality 20c extra per 100 pounds.

Tight cooperage hoop 10c extra per 100 pounds.

Locomotive firebox steel 50c extra per 100 pounds.

Hull material subject to U. S. navy department specification for medium or soft steel 25c extra per 100 pounds.

Ordinary firebox steel 20c extra per 100 pounds.

Flange steel, boiler quality 15c extra per 100 pounds.

Hot pressed steel (not flange steel for boilers) 10c extra per 100 pounds.

Forging quality (when specified) 25c extra per 100 pounds.

### Sketches and Circles

(Not requiring re-entrant cutting)

| | |
|---|---|
| Regular sketches (with not more than four straight edges) including straight taper plates | 20c |
| Irregular sketches (with more than four straight edges) | 50c |
| Sketches finished to a radius | 50c |
| Circles | 50c |
| Semi-circles | 50c |

Extras for sketches requiring re-entrant cutting may be quoted on application when sketches or circles are required to be flame cut, the above extras will apply in addition to regular frame cutting extras.

### Quantity Differentials

All specifications for less than 6000 pounds of a size will be subject to the following "lump sum extras" for handling and assembling.

These extras to be added to the net price of the material and to be determined by the total weight of a size for shipment at one time.

| | Lump sum |
|---|---|
| Less than 6000 lbs. to 4000 lbs. | $2.00 |
| Less than 4000 lbs. to 2000 lbs. | 4.00 |
| Less than 2000 lbs. to 1000 lbs. | 8.00 |
| Under 1000 lbs. | 12.00 |

For all items of hot rolled strip on which the supplier must stand for a drawing hazard of breakage or of rejection for surface disturbance in accordance with trade customs, the following drawing extras to be charged:

12 GA and heavier ....15c per 100 pounds
13 GA and lighter ....25c per 100 pounds

The above also applies wherever the customers specifies hot rolled strip to be normalized or box annealed.

Oil pans (or crank cases) are a type of product requiring the drawing extra.

The specifications requiring guaranteed case carburizing qualities to meet McQuaide Ehn test, carry an extra of 60c per 100 pounds.

### SPECIAL NOTES

1. Unless forging quality is specified, hot rolled strip shall be furnished to ladle analysis only.
2. When hot rolled strip is specified to be shipped in open top cars, buyer shall assume responsibility for damage in transit.
3. In the absence of instructions to the contrary, the Birmingham Wire Gage is used exclusively in the execution of orders.
4. No allowance for uncropped coils.

Extras for chemical specifications per 100 pounds extra.

### Carbon

The mean of the range agreed upon between the purchaser and manufacturer shall determine the extra.

| | 0.76 inch & heavier | 0.75 inch & lighter |
|---|---|---|
| Over .25 to .40 | 5c | 10c |
| Over .40 to .60 | 10c | 40c |
| Over .60 to 1.00 | 15c | 40c |
| Over 1.00 | On application | |

### Manganese

The mean of the range agreed upon between the purchaser and manufacturer shall determine the extra.

| | |
|---|---|
| 0.30 to 0.90 | No extra |
| 0.91 to 1.15 | 10c |
| 1.16 to 1.35 | 20c |
| 1.36 to 1.50 | 25c |

Note: When the mean of the range agreed upon is above 1.15 the extras shall apply only to steel with maximum carbon specified 0.20 or higher. Prices for exceptions made by this note will be quoted on application.

### Silicon

The mean of the range agreed upon between the purchaser and manufacturer shall determine the extra.

| | |
|---|---|
| Minimum not specified | No extra |
| Up to .25 inc. | 10c |
| .26 to .50 | 20c |

### Phosphorus

Minimum not specified .... No extra
0.04 minimum to 0.08 max. 5c

Note: Phosphorus extra applies to open-hearth steel only.

## Rolling and Cutting Tolerances

Hot rolled strip steel shall only be sold on standard gage, width and length tolerances as follows:

WIDTH

| Width Over | Up to including | Tolerances in Width Over | Under |
|---|---|---|---|
| ..... | 1″ No. 16 BWG and Heavier | 1/32″ | 1/32″ |
| ..... | 1″ No. 17 BWG and Lighter | 1/32″ | 1/32″ |
| 1″ | 2 | 1/32″ | 1/32″ |
| 2″ | 5 | 3/64″ | 3/64″ |
| 5″ | 10 | 1/16″ | 1/16″ |
| 10″ | 15 | 3/32″ | 3/32″ |
| 15″ | 20 | 1/8 ″ | 1/8 ″ |
| 20″ | 23-15/16″ | 5/32″ | 5/32″ |

GAGE

| THICKNESS From | Up to and Inc. | Tolerances in Thickness—Widths—Inches: Up to 5, Inc. 5 Over | Under | Over 5, Inc. 10 Over | Under | Over 10, Inc. 15 Over | Under | Over 15, Inc. 23 Over | Under |
|---|---|---|---|---|---|---|---|---|---|
| No. 23 BWG | No. 18 BWK | .003 | .003 | .004 | .004 | ..... | ..... | ..... | ..... |
| No. 17 BWG | No. 11 BWG | .004 | .004 | .005 | .005 | .006 | .006 | .007 | .007 |
| No. 10 BWG | .187″ | .005 | .005 | .006 | .006 | .007 | .007 | .008 | .008 |
| .188″ | .249″ | .006 | .006 | .007 | .007 | .008 | .008 | .009 | .009 |

Thickness measurement to be taken ⅜-inch from edge of strip.

Tolerance for thickness at center measurement to be that for the edge measurement plus:

.001-in. for widths ½-in. to 1½-in.
.002-in. for widths 1½-in. to 2½-in.
.003-in. for widths 2½-in. to 5-in.
.004-in. for widths 5-in. to 10-in.
.005-in. for widths 10-in. to 15-in.
.006-in. for widths 15-in. to 23 15/16-in.

Thickness tolerances do not apply to single strip coil over 250 feet long.

LENGTH

| Length of Bar Over | Up to and Inc. | Tolerances in Length—Inches: Up to 3 in Width Over | Under | Over 3 up to 6 in Width Over | Under | Over 6 in Width Over | Under |
|---|---|---|---|---|---|---|---|
| ..... | 5 feet | ¼ | 0 | ⅜ | 0 | ½ | 0 |
| 5 feet | 10 feet | ⅜ | 0 | ½ | 0 | ¾ | 0 |
| 10 feet | 20 feet | ½ | 0 | ⅝ | 0 | 1 | 0 |
| 20 feet | 30 feet | ¾ | 0 | ¾ | 0 | 1¼ | 0 |
| 30 feet | 40 feet | 1 | 0 | 1 | 0 | 1½ | 0 |
| 40 feet | ..... | 1½ | 0 | 1½ | 0 | 1¾ | 0 |

**Sulphur**

| | |
|---|---|
| Minimum not specified | No extra |
| Up to .10 minimum inc. | 10c |
| .11 to .20 minimum inc. | 17-½c |
| .21 to .30 minimum inc. | 25c |

**Copper**

| | |
|---|---|
| Copper bearing | 15c |

# Stainless Steels

Schedules of base prices and extras covering the full range of chrome and chrome-nickel alloys, embracing hot-rolled bars and plates, sheets and hot and cold-rolled strip have been filed by producers of stainless steels. The new schedules also apply to forging billets and seamless tube billets.

Base prices have been reduced on many of these products. However, the base quantity has been raised to 40,000 pounds, so that quotations on the usual quantities generally are about on a par with old prices.

Base prices and quantity extras are shown at the right.

# Semifinished Steel

Prices of hot rolled carbon open hearth and/or bessemer semifinished steels such as billets, blooms, slabs, sheet bars and skelp of the sizes described in the classifications of extras are scheduled as follows:

Rerolling quality, blooms, billets and slabs. The base price filed for Pittsburgh and Youngstown is $26.00.

Forging and quality blooms, billets and slabs 4 x 4 in. and larger, or rectangular sections of equivalent area. The base price filed for Pittsburgh and Youngstown is $31.00. (Sizes smaller than 4 x 4 in. or equivalent section area for forgings will be sold on a bar basis, subject to bar extras).

Sheet bars. The base price filed for Pittsburgh, Youngstown, Cleveland and Canton, O., is $26.00.

Skelp, (groove rolled, universal and sheared) is 1.60c, Pittsburgh.

**Classification of Extras for Size, Chemical Specifications and Quality**

Note: Forging billets under 4 x 4 in. or rectangular sections of equivalent areas sold on bar basis only.

**Extras for Size**
**Blooms, Billets and Slabs**

| | |
|---|---|
| Squares under 4 x 4 in. to 1½ x 1½ in. incl., or rectangular sections of equivalent areas | $ 1.00 |
| 4 x 4 in. to 9 x 9 in. or equivalent area | No extra |
| Over 9 x 9 in. to under 14 x 14 in. or equivalent area | $ 2.00 |
| 14 x 14 in. to under 16 x 16 | |

(*Please turn to Page* 16)

# Alloy Base Prices

**ALLOY BASE PRICES**

*Cents Per Pound*

| | Hot Rolled Only Bars | No. 1 and 2 Finish Sheets | Strip H. R. | Strip C. R. |
|---|---|---|---|---|
| Max. 0.08% C., 18% Chr., 8% Ni | 24c | 28c | 35c | 24½c | 32c |
| Over 0.08 to 0.12% C., 19% Chr., 9% Ni | 24c | 28c | 35c | 24½c | 32c |
| Over 0.08% to 0.20% C., 18% Chr., 8% Ni | 23c | 26c | 33c | 23½c | 30c |
| Over 0.08% to 0.20% C., 18% Chr., 8% Ni., 2% to 4% Mo. | 38c | 41c | 45c | 38c | 45c |
| 18% Chr., 8% Ni., plus Ti. equal to 4 times C. content | 27c | 32c | 39c | 27½c | 36c |
| **Free Machining Quality** | | | | | |
| Over 0.08% to 0.20% C., 18% Chr., 8% Ni., S. and or Se. Min. 0.15% | 25c | 28c | 35c | 25½c | 32c |
| Over 0.08% to 0.20% C., 20% Chr., 10% Ni | 26c | 30c | 37c | 26½c | 34c |
| 25% Chr., 20% Ni. | 48c | 51c | 52c | 48c | 55c |
| 8% Chr., 22% Ni., 1.00 to 1.50% Cu | 25c | 29c | 36c | 25½c | 33c |
| 18% Chr., 25% Ni. | 48c | 51c | 52c | 48c | 55c |
| Carbon Max. 0.20%, 25% Chr., 12% Ni | 35c | 39c | 46c | 35½c | 46c |
| **Stainless Grade Cl** | | | | | |
| C. Max., 0.12%, Chr. 12 to 15% | 17c | 20c | 25c | 17c | 22½c |
| **Free Machining Quality** | | | | | |
| C. Max. 0.12%, Chr. 12% to 15%, s. and or Se. Min. 0.15% | 17c | 20c | 25c | 17c | 22½c |
| **Turbine Quality** | | | | | |
| C. Max. 0.12%, Chr. 11½ to 13% | 20c | 23c | 28c | 20c | 25½c |

To these base prices must be added regular established extras for size, finish, quantities, etc.

**QUANTITY DIFFERENTIALS**

*Applying to All Forms Except Tubing and to All Grades Except 4 to 6% Chrome*

**Applicable to Individual Items of a Size and Gage Ordered at One Time for Shipment at One Time**

| | |
|---|---|
| Over 40,000 Base | |
| Under 40,000 to 20,000 lb. | add 1c |
| Under 20,000 to 10,000 lb. | add 1½c |
| Under 10,000 to 5,000 lb. | add 2c |
| Under 5,000 to 2,000 lb. | add 3c |
| Under 2,000 to 1,000 lb. | add 4c |
| Under 1,000 to 500 lb. | add 5c |
| Under 500 to 300 lb. | add 7c |
| Under 300 to 200 lb. | add 9c |
| Under 200 to 100 lb. | add 11c |
| Under 100 lb. | add 12c |

| | Hot Rolled Only Bars | No. 1 and 2 Finish Sheets | Strip H. R. | Strip C. R. |
|---|---|---|---|---|
| **Stainless Grade A** | | | | |
| C. over 0.12%, Chr. 12 to 15% | 28c | 31c | 36c | 28c | 37c |
| **Stainless Grade C2** | | | | |
| C. Max. 0.12%, Chr. over 15 to 18% | 18½c | 21½c | 28c | 18½c | 24c |
| **Stainless Grade B** | | | | |
| C. over 0.12%, Chr. over 15 to 18% | 26c | 29c | 34c | 26c | 35c |
| Chr. over 18 to 23% | 21c | 24c | 31c | 21c | 27c |
| **Stainless Grade C4** | | | | |
| C. Max., 0.25%, Chr. 23 to 30% | 26c | 29c | 35c | 26c | 35c |

To the above base prices must be added regular established extras for size, finish, quantities, etc.

| | | | | | |
|---|---|---|---|---|---|
| **4 to 6 Per Cent Chrome** | | | | | |
| 0.25 to 0.21% C. | 6½c | 9½c | 13½c | 9½c | 13½c |
| 0.20 to 0.16% C. | 7½c | 10½c | 14½c | 10½c | 14½c |
| 0.15 to 11% C. | 8¼c | 11¼c | 15¼c | 11¼c | 15¼c |
| 0.10% Max. C. | 9c | 12c | 16c | 12c | 16c |

**Forging Billets**

Billets, round or round-cornered square, for forging 4" and larger, and round-cornered flat at 16 sq. in. cross sectional area and larger, 10% less than the bar base.

Billets smaller than 4" round or square, and flats of less than 16 sq. in. cross sectional area, take the finished bar classification.

Billets, annealed for cold cutting or cold shearing, take an extra 1c per pound; if rough turned add 1½c per lb. One-half of stainless quantity extras also apply.

When cold cut to exact length, add regular extras for wastage.

**Seamless Tube Billets**

Round billets 3" and larger, for piercing, for the manufacture of Seamless Tubes, Hot Rolled Bar Base less 10%. With no extra for size. When rough turned add 1½c per pound, cutting to length or weight ¼c per pound. One-half of stainless quantity extras also apply.

**EXTRA FOR ALLOY ADDITIONS**

| | |
|---|---|
| 0.40 to 0.60% Mo. | Add 1c per lb. |
| 0.75 to 1.25% T. | Add 3c per lb. |
| 1.00 to 2.00% Si. | Add 1c per lb. |

**Annealing** 4.00 to 6.00% Chrome— 1c per pound extra for all commodities. All other extras, one-half of regular extras, except circling sheets and plates, which take full stainless extras.

**QUANTITY DIFFERENTIALS**

*Applying Only to 4.00 to 6.00% Chrome*

**Applicable to Individual Items of a Size and Gage Ordered at One Time for Shipment at One Time**

| | |
|---|---|
| Over 40,000 Base. | |
| Under 40,000 to 20,000 lb. | add ½c |
| Under 20,000 to 10,000 lb. | add ¾c |
| Under 10,000 to 5,000 lb. | add 1c |
| Under 5,000 to 2,000 lb. | add 1½c |
| Under 2,000 to 1,000 lb. | add 2c |
| Under 1,000 to 500 lb. | add 2½c |
| Under 500 to 300 lb. | add 3½c |
| Under 300 to 200 lb. | add 4½c |
| Under 200 to 100 lb. | add 5½c |
| Under 100 lb. | add 6c |

**(Semifinished Steel Concluded)**

in. or equivalent area.....$ 4.00
16 x 16 in. to under 20 x 20 in. or equivalent area.....$ 6.00
20 x 20 in. and over or equivalent area .....$ 8.00
Weight per piece when ordered 12,000 pounds or over .....$10.00
(This shall not apply when product of ingot is accepted.)

**Extras for Chemical Specifications Blooms, Billets, Slabs and Sheet Bars Bessemer and Open-Hearth Steel**

The mean of the range agreed upon between the purchaser and manufacturer shall determine the extra.

**Carbon**

Open-Hearth or Bessemer—
0.10 to 0.25, Open-Hearth.....No extra
0.08 to 0.25, Bessemer .....No extra
0.26 to 0.60 .....$ 1.00
0.61 to 1.25 ..... 3.00
When maximum specified is:
0.09, open-hearth .....$ 1.00
0.07, Bessemer ..... 1.00

**Manganese**

0.30 to 0.90 .....No extra
0.91 to 1.15 .....$ 2.00
1.16 to 1.35 ..... 4.00
1.36 to 1.50 ..... 5.00
1.51 to 2.00 (No extra for forging quality) ..... 13.00
Note: For manganese content above a mean of 1.15 the above extras apply only to steel with maximum carbon specified 0.20 or higher. Prices for exceptions made by this note will be quoted on application.

**Phosphorus**

Minimum not specified.....No extra
0.04 minimum to 0.08 minimum .....$ 1.00
Note: Phosphorus extra applies to open-hearth steel only. Phosphorus extra does not apply to sheet bars.

**Sulphur**

Minimum not specified.....No extra
0.07 minimum to 0.10 minimum .....$ 2.00
0.11 minimum to 0.20 minimum ..... 3.50
0.21 minimum to 0.30 minimum ..... 5.00

**Silicon**

Minimum not specified.....No extra
0.10 to 0.25 .....$ 2.00
0.26 to 0.50 ..... 4.00

**Copper**

Copper content .20/.30.....$1.00
Note: All extras are given in dollars per gross ton. Extras are applicable only to acceptable sizes in the chemical limits specified.

**Extras for Quality**

Special requirement forging or carburizing quality .....$5.00
(To be added to base price for forging quality billets.)

**U. S. Navy Specification**

Extra for specification and inspection under Navy specification 46-S-4E, carbon steel blooms, billets and slabs for reforging..... .....extra. $20.00 per gross ton

# Pig Iron

Important changes in the pricing of pig iron are revealed in the schedules filed by producers under the terms of the iron and steel code.

Delivered prices at the principal consuming points are determined by adding to the base price the freight charge from the basing point to the place of delivery. With a number of new basing points established, this policy has the effect of discouraging sellers from wandering beyond their natural trade areas. It will tend to localize the pig iron business.

**Twenty Basing Points**

For foundry, malleable, open-hearth basic and bessemer pig iron, 20 basing points are established, as follows: Everett, Mass.; Bethlehem, Birdsboro and Swedeland, Pa.; Sparrows Point, Md., and Buffalo, serving the Atlantic seaboard territory; Neville Island and Sharpsville, Pa. and Youngstown serving the Pittsburgh area; Erie, Pa.; Cleveland and Toledo, O.; and Detroit serving the lower lake region; Hamilton, O., serving Ohio river points; Duluth; Chicago and Granite City, Ill., serving the upper Mississippi valley; Birmingham, serving the South and northern water and rail markets; and Provo, Utah, serving the Pacific coast.

Basing points for low phosphorus pig iron are Birdsboro and Steelton, Pa.; Standish, N. Y. and Johnson City, Tenn.

The descriptions No. 1X and No. 2X disappear from pig iron lexicons, and for each 0.25 silicon above 2.25, which is the top of the range for ordinary No. 2 foundry iron, an extra of 25 cents per ton is charged.

## New Basing Points and Delivered Prices of Pig Iron

| | No. 2 Foundry | Malleable | Basic | Bessemer |
|---|---|---|---|---|
| Basing Points: | | | | |
| Bethlehem, Pa. | $17.50 | $18.00 | $17.00 | $18.50 |
| Birdsboro, Pa. | 17.50 | 18.00 | 17.00 | ..... |
| Swedeland, Pa. | 17.50 | 18.00 | 17.00 | 18.50 |
| Sparrows Point, Md. | 17.50 | 18.00 | 17.00 | 18.50 |
| From above basing points delivered, Philadelphia | 18.76 | 19.16 | 18.16 | *19.76 |
| Basing Points: | | | | |
| Everett, Mass. | 18.00 | 18.50 | 17.50 | 19.00 |
| Buffalo | 17.50 | 18.00 | 17.00 | 18.50 |
| From Buffalo del. to: | | | | |
| Boston | 19.50 | 20.00 | 19.00 | 20.50 |
| Brooklyn | 19.77 | 20.27 | 19.27 | 20.77 |
| Newark, N. J. | 18.89 | 19.39 | 18.39 | 19.89 |
| Basing Points: | | | | |
| Neville Island, Pa. | 18.00 | 18.00 | 17.50 | 18.50 |
| Sharpsville, Pa. | 17.50 | 17.50 | 17.00 | 18.00 |
| Youngstown, O. | 17.50 | 17.50 | 17.00 | 18.00 |
| From above points delivered, Pittsburgh | 18.63 to 19.13 | 18.63 to 19.13 | 18.13 to 18.63 | 19.13 to 19.63 |
| Basing Points: | | | | |
| Erie, Pa. | 17.50 | 18.00 | 17.00 | 18.50 |
| Cleveland | 17.50 | 17.50 | 17.00 | 18.00 |
| Toledo, O. | 17.50 | 17.50 | 17.00 | 18.00 |
| Detroit | 17.50 | 17.50 | 17.00 | 18.00 |
| From Cleveland, delivered, Akron, Canton, O. | 18.76 | 18.76 | 18.26 | 19.26 |
| From Toledo, del. to: | | | | |
| Mansfield, O. | 19.39 | 19.39 | 18.89 | 19.89 |
| Detroit | 18.60 | 18.60 | 18.10 | 19.10 |
| Saginaw, Mich. | 20.53 | 20.53 | 20.03 | 21.03 |

*Except Birdsboro, Pa.

| | No. 2 Foundry | Malleable | Basic | Bessemer |
|---|---|---|---|---|
| Basing Point: | | | | |
| Hamilton, O. | 17.50 | 17.50 | 17.00 | 18.00 |
| From Hamilton, delivered to Cincinnati | 18.63 | 18.63 | 18.13 | 18.13 |
| Basing Points: | | | | |
| Duluth | 18.00 | 18.00 | ..... | 18.50 |
| Chicago | 17.50 | 17.50 | 17.00 | 18.00 |
| Granite City, Ill. | 17.50 | 18.00 | 17.00 | ..... |
| From Chicago delivered to: | | | | |
| Milwaukee | 18.60 | 18.60 | 18.10 | 19.10 |
| St. Paul | 20.67 | 20.67 | 20.17 | 21.17 |
| Indianapolis | 20.28 | 20.28 | 19.77 | 20.77 |
| Muskegon, Mich. | 20.53 | 20.53 | 20.03 | 21.03 |
| St. Louis | 19.79 | 19.79 | 19.29 | 20.29 |
| From Granite City, delivered to St. Louis | 18.35 | 18.85 | 17.85 | ..... |
| Basing Point: | | | | |
| Birmingham, Ala. | 13.50 | 14.00 | 12.50 | ..... |
| From Birmingham delivered to: | | | | |
| Boston, dock | 19.38 | 19.88 | 18.88 | ..... |
| New York, dock | 19.13 | 19.63 | 18.63 | ..... |
| Philadelphia, dock | 18.88 | 19.38 | 18.38 | ..... |
| Baltimore, dock | 18.63 | 19.13 | 18.13 | ..... |
| Cleveland | 19.64 | 20.14 | 19.14 | ..... |
| Cincinnati | 18.13 | 18.63 | 17.13 | ..... |
| Chicago | 18.16 | 18.66 | 17.66 | ..... |
| St. Louis | 18.35 | 18.85 | 17.85 | ..... |
| Basing Point: | | | | |
| Provo, Utah | ..... | ..... | ..... | ..... |
| From Provo delivered to Pacific Coast | 22.00 | ..... | ..... | ..... |

# August Iron Output in Small Gain; Seven Furnaces Out

PRODUCTION of coke pig iron in the United States registered a small gain in August notwithstanding the fact that seven blast furnaces were made inactive. This favorable showing was made possible by the 15 stacks resuming in July and exerting their full effect during the month just closed. On Aug. 31, operating furnaces numbered 98. This compilation is based on reports from all pig iron makers, although involving some estimation for the last one or two days of the month.

During August, iron was made at an average daily rate of 59,011 gross tons, which compared with the 58,108-ton rate of July, was a gain of 903 tons, or 1.5 per cent. This was the best showing since May, 1931, with 64,355 tons. In August, one year ago, the daily rate was 17,035 tons, this being the low point of the depression.

Total output in August was 1,829,345 gross tons, this being an increase of 28,000 tons, or 1.5 per cent, over the 1,801,345 tons of the preceding month. This total likewise was the highest since May, 1931, when 1,995,001 tons was made. In August, 1932, the bottom point of production, only 528,105 tons was recorded.

For the eight months ended in August, production has aggregated 8,075,440 tons, which against the 6,246,095 tons of the corresponding period of 1932, was an improvement of 1,829,345 tons. During the same period of 1931, output was 13,839,597 tons.

Relating production to capacity, operations in August were at a rate of 42.8 per cent, as compared with 42.2 per cent in July, 30.6 per cent in June and only 12.0 per cent in August a year ago.

In August, 1 steelworks furnace resumed operations and 10 were blown out or banked, making a net loss of 9 for this class. Of the merchant class, 2 stacks were blown in and none was blown out. Compared with the total of 98 furnaces making iron on the last day of August, 105 were active on the last day of July and 90 at the close of June.

Blast furnaces resuming in August were: In Ohio: Toledo B, Interlake Iron Corp. In Maryland: Maryland C, Bethlehem Steel Co. In Alabama: Pioneer No. 2, Republic Steel Corp.

Furnaces blown out or banked during the month were: In Ohio: Ohio No. 5, Carnegie Steel Co.; Haselton No. 4, Republic Steel Corp.; Lorain No. 2, National Tube Co. In Pennsylvania: Duquesne, No. 3, Carrie Nos. 6 and 7, Carnegie Steel Co. In Alabama: Ensley Nos. 3 and 6, Tennessee Coal, Iron & Railroad Co. In Illinois: South Works No. 10, Illinois Steel Co. In Indiana: Gary No. 2, Illinois Steel Co.

**AVERAGE DAILY PRODUCTION**

| | 1933 | 1932 | 1931 | 1930 |
|---|---|---|---|---|
| Jan. | 18,348 | 31,336 | 55,337 | 91,573 |
| Feb. | 19,752 | 33,122 | 61,114 | 101,640 |
| Mar. | 17,484 | 31,194 | 65,448 | 104,930 |
| Apr. | 20,786 | 28,524 | 66,986 | 106,371 |
| May | 28,784 | 25,282 | 64,355 | 104,564 |
| June | 42,165 | 20,867 | 54,599 | 97,817 |
| July | 58,108 | 18,394 | 47,170 | 85,110 |
| Aug. | 59,011 | 17,035 | 41,264 | 81,455 |
| Sept. | ..... | 19,788 | 38,947 | 75,893 |
| Oct. | ..... | 20,795 | 37,831 | 69,851 |
| Nov. | ..... | 20,858 | 36,727 | 62,182 |
| Dec. | ..... | 17,650 | 31,625 | 53,732 |
| Av. | 33,232 | 23,699 | 50,035 | 86,141 |

**RATE OF OPERATION**

(Relation of Production to Capacity)

| | 1933[1] | 1932[2] | 1931[3] | 1930[4] |
|---|---|---|---|---|
| Jan. | 13.3 | 22.1 | 38.4 | 65.0 |
| Feb. | 14.3 | 23.4 | 42.5 | 72.1 |
| March | 12.7 | 22.0 | 45.4 | 74.5 |
| April | 15.1 | 20.2 | 46.5 | 75.4 |
| May | 20.9 | 17.9 | 44.7 | 74.2 |
| June | 30.6 | 14.7 | 37.9 | 69.3 |
| July | 42.2 | 13.0 | 32.7 | 60.3 |
| Aug. | 42.8 | 12.0 | 28.7 | 57.8 |
| Sept. | ..... | 14.0 | 27.0 | 53.8 |
| Oct. | ..... | 14.7 | 26.3 | 49.6 |
| Nov | ..... | 14.7 | 25.5 | 44.1 |
| Dec. | ..... | 12.5 | 22.0 | 38.1 |

[1]Based on capacity of 50,313,975 gross tons, Dec. 31, 1932; [2]on capacity of 51,598,175 tons; [3]on capacity of 52,515,875 tons; [4]on capacity of 51,490,680 tons. Capacities by American Iron and Steel Institute.

**MONTHLY PIG IRON PRODUCTION**

| | 1933 | 1932 | 1931 |
|---|---|---|---|
| Jan. | 568,785 | 971,437 | 1,715,443 |
| Feb. | 553,067 | 960,550 | 1,711,192 |
| March | 542,013 | 967,015 | 2,028,906 |
| April | 623,606 | 855,734 | 2,009,582 |
| May | 892,326 | 783,769 | 1,995,001 |
| June | 1,264,953 | 626,015 | 1,637,998 |
| July | 1,801,345 | 570,222 | 1,462,270 |
| Aug. | 1,829,345 | 528,105 | 1,279,205 |
| T'l 8 mo. | 8,075,440 | 6,246,095 | 13,839,597 |
| Sept. | ..... | 593,640 | 1,168,436 |
| Oct. | ..... | 644,648 | 1,172,781 |
| Nov. | ..... | 625,753 | 1,101,820 |
| Dec. | ..... | 547,179 | 980,377 |
| Total | ..... | 8,674,067 | 18,263,011 |

# Steel Rate Off 3 Points to 45%

STEELWORKS operations for the week ended Sept. 2 dropped 3 points to 45 per cent, and it is indicated the national rate will decline still farther this week, due partly to Labor day. In the Cleveland-Lorain district the rate last week was reduced 13 points to 59 per cent; at Pittsburgh, 7 points to 36 per cent; at Chicago, 2 points to 46 per cent; in eastern Pennsylvania, 2 points to 37 per cent; and at Youngstown, 1 point to 52 per cent. The New England district remained at 85 per cent; Wheeling, 80; Detroit and Birmingham, Ala., 55 per cent; and Buffalo, 41.

### Chicago

Steelmaking operations declined 2 points the past week to 46 per cent. Schedules now are back to the rate of late June and compare with the July peak of around 60 per cent. Mills see little prospect of an immediate upturn with further small decreases anticipated for this month. Blast furnace schedules are unchanged with 11 of 36 steelworks stacks active.

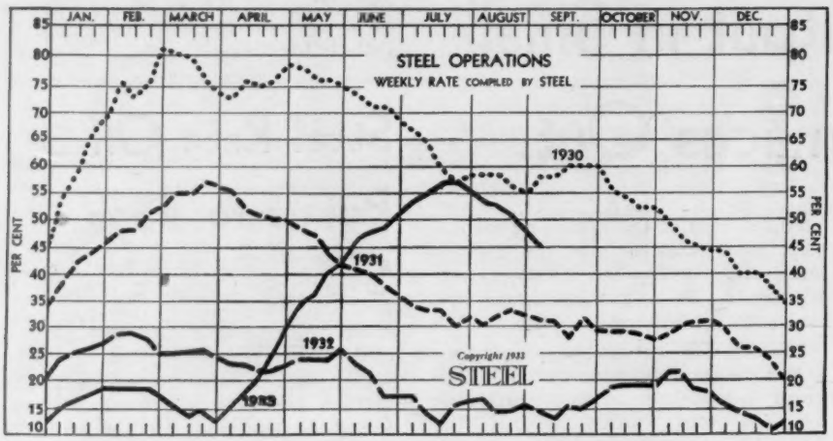
### Pittsburgh

Steel ingot operations in the Pittsburgh district declined 7 points last week to average 36 per cent through that period. This was the most marked change, either upward or downward, of the year and was caused by open-hearth suspensions at the various plants of a leading interest in the district. There continue to be 19 out of 53 steelworks blast furnaces blowing here but

**AUGUST IRON PRODUCTION**

| | No. in blast last day of month Aug. | July | Total tonnage Merchant | Nonmerchant |
|---|---|---|---|---|
| Ohio | 26 | 28 | 52,508 | 483,323 |
| Penna. | 32 | 35 | 46,730* | 526,635* |
| Alabama | 8 | 9 | 71,741 | 51,873 |
| Illinois | 6 | 7 | 21,288 | 100,618 |
| New York | 8 | 8 | 43,221 | 64,376 |
| Colorado | 1 | 1 | | |
| Indiana | 6 | 7 | 886 | 263,406 |
| Maryland | 4 | 3 | | |
| Virgania | 0 | 0 | | |
| Kentucky | 1 | 1 | | |
| Mass. | 0 | 0 | | |
| Tennessee | 0 | 0 | | |
| Utah | 1 | 1 | 4,407 | 98,333 |
| West Va. | 3 | 3 | | |
| Michigan | 2 | 2 | | |
| Minnesota | 0 | 0 | | |
| Missouri | 0 | 0 | | |
| Total | 98 | 105 | 240,781* | 1,588,564* |

*Includes ferro and spiegeleisen.




against capacity schedules on their part recently, many are now fanning.

Steel ingot production this week in the district probably will be sustained at around 35 per cent, but unfilled orders for production and rolling are dwindling.

### Cleveland

Steelworks operations here for the week ended Sept. 2 averaged 59 per cent, down 13 points from the preceding week. Corrigan, McKinney Steel Co. is operating nine of its 14 open hearths; Otis Steel Co., four of its eight; and National Tube Co., Lorain, ten of its 12. Most of the active open hearths will continue to operate Labor day. A blast furnace at Lorain has been banked for relining.

### Detroit

Great Lakes Steel Corp. continues to operate its six open hearths, while the 10 Ford open hearths are down, giving the district an operating average of 55 per cent based upon capacity. The two Hanna furnaces here continue in blast. Since finishing mill operations at Great Lakes were scheduled for only two days last week, some ingots were stocked.

### Youngstown, O.

Steel plant operations here for the week ended Sept. 2 dropped a point to 52 per cent, and were expected to start this week around 48 per cent due partly to lower output at some plants on Labor day. Forty-three of 83 open hearths were operating last week. The Carnegie Steel Co. has reduced ingot output at its Ohio works here.

### Eastern Pennsylvania

Steelmaking operations in this district declined 2 points last week to 37 per cent, with a further recession this week due to the holiday.

### New England

Steel works operations in New England are up 1 point this week to 86 per cent. Two works are producing at practically 100 per cent with all open hearths on. A third producer stepped up operations 5 points late last week and will continue this week. One plant has a substantial backlog for ingots while a second is producing for inventory with one hearth recently started after repairs were completed.

### Wheeling

Steel operations in this district are steady, based on an 80 per cent ingot operating rate. The same number of open hearths as two weeks ago, 27, were active through last week.

### Buffalo

Steel production continued at 41 per cent during the past week. A temporary curtailment will be made over Labor day.

### Birmingham

Steelworks operations continue unchanged at 55 per cent, with eight open hearths active at Fairfield and five at Gadsden. The supply of ingots has been built up slightly. Finishing mills, except sheet, are easing off somewhat.

## Put Plaque on Prize Bridge

F. H. Frankland, director of engineering service of the American Institute of Steel Construction, New York, Aug. 26 unveiled a stainless steel plaque designating the French King bridge carrying the Mohawk Trail over the Connecticut river near Greenfield, Mass., as the most beautiful bridge of medium size built in 1932.

The McClintic - Marshall Corp., Bethlehem, Pa., fabricated and erected the superstructure; Simpson Bros. Corp., Boston, built the substructure; the bridge was designed and built under the supervision of A. W. Dean, chief engineer, and G. E. Harkness, bridge engineer, Massachusetts department of public works.

## Kenneth A. Kemmerer Dies

Kenneth A. Kemmerer, 42, Bethlehem, Pa., died Aug. 29 after a brief illness. He was assistant to the traffic manager in charge of terminal railroads of the Bethlehem Steel Co. A native of Bethlehem, he attended Lehigh university and his first employment was with the Lehigh railroad. For 18 years he had been employed by the Bethlehem Steel Co. in steadily rising capacities.

## Operating Rate of the Steel Industry, by Weeks

All figures except monthly open-hearth and bessemer totals of American Iron and Steel institute are percentages, based on reports from Pittsburgh, Chicago, Youngstown, eastern Pennsylvania, Cleveland, Birmingham, Buffalo, Wheeling, New England, St. Louis, Lorain, Detroit districts. Weeks end Saturday. STEEL's weekly estimates take into account only actual available capacity, which is less than Institute's total.

| 1932 | 1st Week | 2nd Week | 3rd Week | 4th Week | 5th Week | STEEL's Average | Institute's Monthly Total tons | Institute's Monthly Average |
|---|---|---|---|---|---|---|---|---|
| Jan. | 22 | 25 | 26 | 27 | 28.5 | 25.7 | 1,484,991 | 26.41 |
| Feb. | 28.5 | 27 | 25 | 25 | .... | 26.4 | 1,481,253 | 27.40 |
| March | 25 | 25.5 | 24.5 | 23 | .... | 24.5 | 1,433,337 | 24.55 |
| April | 23 | 22 | 22 | 23 | 24 | 22.8 | 1,259,629 | 22.40 |
| May | 24 | 24 | 25.5 | 23 | .... | 24.1 | 1,125,243 | 20.01 |
| June | 21 | 17 | 17 | 17 | .... | 18.0 | 912,757 | 16.23 |
| July | 14.5 | 12 | 15.5 | 16.5 | 16.5 | 15.0 | 806,722 | 14.92 |
| Aug. | 14.5 | 14.5 | 15.5 | 14.5 | .... | 14.7 | 846,730 | 14.50 |
| Sept. | 13.5 | 15.5 | 15 | 17 | .... | 15.3 | 991,858 | 17.64 |
| Oct. | 18 | 19 | 19.5 | 19.5 | 19.5 | 19.1 | 1,087,058 | 19.33 |
| Nov. | 21 | 21 | 19 | 17.5 | .... | 19.6 | 1,032,221 | 18.36 |
| Dec. | 16 | 15 | 14 | 12 | 13 | 14.0 | 861,034 | 15.31 |
| 1933 | | | | | | | | |
| Jan. | 15.5 | 17 | 18 | 19 | .... | 17.4 | 1,030,075 | 18.23 |
| Feb. | 19 | 19 | 19 | 17 | .... | 18.5 | 1,086,867 | 20.83 |
| March | 15 | 13.5 | 15 | 14 | 15.5 | 14.6 | 909,886 | 15.50 |
| April | 17.5 | 20.5 | 25 | 29 | .... | 23.0 | 1,362,856 | 25.08 |
| May | 33 | 36 | 40 | 43 | .... | 38.0 | 2,001,991 | 34.11 |
| June | 47 | 48 | 49 | 51 | 54 | 49.8 | 2,597,517 | 45.96 |
| July | 55 | 57 | 57 | 55 | .... | 55.8 | 3,203,810 | 58.95 |
| August | 54 | 54 | 51 | 48 | 45 | .... | ..... | ..... |

# Services of *STEEL* relative to the Iron and Steel Industry Code of Fair Competition

## *Steel Code Prices and Extras*

TODAY the most important item of business before consumers, distributors and sellers of iron and steel is mastery of the new price schedules filed under the terms of the recently approved Code. Confusion will attend the negotiation of all contracts until the intricacies of the new price structure are interpreted intelligently, digested thoroughly and reduced to routine procedure throughout the industry.

STEEL is conscious of its great opportunity to serve its readers faithfully during this important period. In this issue it presents the complete price schedules of many important iron and steel products, accompanied by explanation of the significant changes in classifications and methods of quoting. In subsequent issues STEEL will publish all information available which will help its readers to size up the price situation accurately. This information will be presented to readers weekly as rapidly as it develops.

In presenting promptly and completely all pertinent information on prices and extras, STEEL is actuated by the same motive which caused it to take the lead in expanding its Washington service, in introducing "Windows of Washington", and in sending four experienced observers (in addition to its resident editor) to cover the Steel Code hearing. It is the same motive which prompted STEEL, in the issue of August 28, to present the text of the approved Code in full, with annotations showing every important change from the original draft.

STEEL is alert to your requirements in this hour of adjustment to new methods. Rely upon it for the information and interpretation necessary to enable you to work intelligently under the new rules of your business!

E. L. Shaner, Editor.

## *Steel Code Booklet*

STEEL printed and has available, in handy booklet form (68 pages plus loose chart) the official "Code of Fair Competition for the Iron and Steel Industry" as approved by The President on August 19, 1933.

The Code consists of 12 Articles and eight Schedules.

Also included in this booklet is Title 1 of the National Industrial Recovery Act—"to encourage national industrial recovery, to foster fair competition—"

A Table of Contents provides easy reference.

The loose chart on Basing Points for Iron and Steel Products is well arranged for ease of reference.

This is the official Code, *as is*, and not the tentative Code submitted by the American Iron and Steel Institute in July.

Price:—25 cents per copy, delivered. Address Book Department, Penton Publishing Co., Penton Bldg., Cleveland.

## *Steel Code in Pamphlet Form*

The August 28 issue of STEEL carried the complete "Code of Fair Competition of the Iron and Steel Industry", as approved by The President on August 19, 1933.

This presentation of the Code *as is*, shows in **black face type** all *additions* to the original draft of Code as submitted by the American Iron and Steel Institute to N R A in July.

Also, there appears *in italics*, editorial annotations regarding eliminations and changes from the tentative code as submitted.

This article presents the complete Code *as is*, at the same time indicating all additions, changes and eliminations from the tentative Code. This avoids all confusion between the two Codes (Tentative and Official) and at the same time gives all information as to changes.

This is the only copy of the Official Code so far presented in this manner. In pamphlet form (12 pages). Free to subscribers, on request.

**STEEL**
**Cleveland, Ohio**

Date .....

Please send ..... free reprints of the annotated Steel Code as published in STEEL August 28, 1933.

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# WINDOWS OF WASHINGTON

*WASHINGTON*

LABOR day was a milestone for General Johnson and his NRA. It ended what was feared might be a critical month for industry. It was the date by which codes of fair competition for major industries were to be effective, the public works program to be in full swing, 7,000,000 men to be re-employed.

The crisis for industry was predicated on the misgiving that production, then rapidly mounting, might over-run purchasing power, and the immediate objective of the recovery program, in its simplest form, was to close the gap between the two.

This gap has been narrowed, but more because of a curtailment of production, resulting in part from seasonal influences and uncertainty over the effects of NRA, than because of an expansion of purchasing power. There has been some accomplishment, but in a negative way.

By Labor day codes for six "key" industries—steel, coal, oil, automobiles, lumber and textiles—had been approved and were technically in force, but only in textiles and lumber was there anything approaching full effectiveness.

These "key" industries represent 70 per cent of all employment, except agriculture. Approved codes of smaller industries probably blanket another 10 per cent, while codes for the remaining sector of employment are still in process here. The coding of industry is fully 30 days behind schedule, but considering the enormity of the task, progress has been made.

The public works program has been an utter failure thus far from the standpoint of getting men and materials in action, due largely to the painstaking methods of the Ickes board. Speed has been sacrificed for the most minute examination of all projects. The smell of "pork" has been avoided, but at the expense of perspiration.

Nothing like 7,000,000 men have been returned to work; the widest claim is 2,000,000. And since payrolls have not increased commensurately, it is believed that these 2,000,000 have largely diluted payrolls. In fact, the diminution of production in August proved this. Hence there has been little actual gain in purchasing power from the coding of industry—thus far.

## PWA Program Lags Badly

• • •

## Govt. Not in Foreign Trade

• • •

## See Aid in Trust Law Ban

Taking inventory as of Labor day, the public works program has fallen down badly and the Johnson program is behind schedule, but from a quantitative rather than a qualitative analysis, General Johnson has accomplished marvels.

HEARINGS on codes continue this month and headquarters of NRA remain the most confused and clamorous place in Washington, but the higher commands are easing off and regarding September as a testing time.

Throughout the month the steel, automobile, coal and oil codes will be taking effect, and NRA is taking time off to sit in on price control movements.

This month the seasonal fall upturn is scheduled to begin gathering strength. This movement, if NRA plans go over, will be accelerated by the consumer drive which got under way last week.

The President back in Washington for good, he and treasury officials will be scanning the effects of the recovery program almost daily. To what extent inflation is employed will be governed almost entirely by the trend in basic industries this month.

If the trend is only mildly upward, the insistence that the President employ his powers for inflation, most of which have remained dormant since congress adjourned, will be renewed. There is evidence already of pressure.

Congress, it will be recalled, convenes in the first week of January. Toward the close of the special session last spring a more critical attitude developed. The White House needs a good fall showing in business to retain its supremacy, and since December usually is in a pre-inventory and year-end lull a genuinely brisk upturn is highly desirable during the next 90 days.

The recent prod of General Johnson that commercial banking activity has about ceased and the proposal of the President that the R.F.C. devise a means of financing extra expenditures caused by compliance with NRA indicate some action this month to loosen up the banking situation.

The forecasts in Washington are uniformly for good fall business and rising prices. Every commodity is regarded as a "buy" at today's levels. But whether this energizing both of production and prices comes naturally or as a result of economic stimulants only time will tell.

There is increasing opinion that business shortly will develop intrinsic strength, but at the same time some measure of inflation is regarded as almost assured.

WASHINGTON—meaning by that a crosscut through all shades of opinion—believes industry is making too much of the open shop issue.

Lacking a first-hand knowledge of all the factors that make the open shop worth wading through fire and water, and conceding that organized labor has become aggressive to the point of disturbing some of its apologists, Washington thinks industry has looked at only one side of the picture.

Let labor organize, if it chooses, and if this eventually results in higher wages and more restrictive conditions of labor, pass these added costs

along to the consumer, is the viewpoint. Suspension of antitrust laws and a measure of price control, if not fixing, are regarded here as full requital for unionization.

From General Johnson down, in NRA there is no disguising that commodity prices are bound to rise. In fact, the extremely low depression prices have been castigated by the general, and he has declared this generation will not see them repeated.

Of course, representatives of NRA will sit on boards having to deal with prices, in much the manner that Messrs. Richberg, Simpson and Sachs conferred last week with the American Iron and Steel institute. But, as iron and steel executives learned in the days preceding promulgation of the steel code, there is a tendency in Washington to be a little more liberal with industry.

So, unmindful of the moral wrench involved in withdrawing the opposition to unionization, a large sector of Washington privately wonders why industry dos not accede, be generous in regard to wages, then quietly take full advantage of the co-operation provided by the recovery act and get on a remunerative basis.

EXPECTED to lead the field in providing employment, both directly and indirectly, the public works administration, or PWA, is a poor last.

More than a third of the entire fund available, or slightly over $1,200,000,000, has been allotted, but up to the end of last week a negligible percentage of projects actually was under way.

Although $400,000,000 was earmarked in the recovery act for highways, and plans were completed for many of these roads, less than 20 are under construction.

Some of the delay is attributable to the red tape that is being unwound, especially in regard to highways. It is necessary that funds allotted to the various states be distributed over as many counties as possible, and individual maps showing the relation of these projects within each state are required. The Ickes board has, in effect, studied a map of each county involved.

Thus far the beneficial effects to steel and iron have been slight. The largest individual tonnage will flow from the completion of the Triborough bridge in New York. A vehicular tunnel from New York to Weehawken is promising. For highways, practically no bars or mesh have been needed thus far, and judging from some comments in Washington it will be necessary to convince certain high officials that concrete can be laid in winter.

Up to Aug. 20, a total of $1,197,000,000 had been allotted from the $3,300,000,000 public works fund. This breaks down into $100,000,000 for agricultural credits, $238,000,000 for the naval program already started, $25,000,000 for subsistence homesteads, $100,000 for administering PWA and $630,000 for General Johnson's portion of NRA.

The $400,000,000 for highways and $50,000,000 for trails in Indian reservations and other public domains are included in $501,624,000 doled out to the department of agriculture. For other departments the apportionment is $141,244,319 to the department of the interior, $50,000,000 to the Tennessee Valley authority, $31,508,000 to the war department, $851,000 to the department of justice, $1,844,000 to the department of labor, $8,698,202 to the department of commerce, $20,881,236 to the treasury, $400,000 to so-called independent offices and $1,528,000 to the department of state.

Since this tabulation, the Port of New York Authority has been allotted $37,500,000 for the new Weehawken tunnel. For 14 irrigation projects, $15,415,000 has been authorized.

Not all PWA projects appear to be cloaked with great public interest or to be pregnant with labor and material possibilities. Two hundred dollars has been set aside for a hood over a washing machine in the department of agriculture, and $800 for a vault in which to store records of Chinese immigrants in the department of labor. The $171,638 for the national arboretum appears to be the consummation of somebody's hobby.

Cast iron pipe manufacturers got their first "break" from PWA last week when five municipalities—Pahokee, Fla.; Clarton, Mo.; Fort Benton, Mont.; Spearfish, S. Dak., and Newcastle, Wyo., received authorization on waterworks projects. The tonnage to be required is not large, but it is the first aid received by this industry. Some of the money will be spent on leak surveys.

THE railroads appear gradually to be moving into the recovery program.

Because of their contracts with the brotherhoods and the railroad unions, they have not participated in the NRA program. Representations have been made to the President by organized labor, but to no avail.

From time to time reports spring up that the railroads will buy 100,000 freight cars and 1500 locomotives —not that they need them any more than the country needs $400,000,000 worth of highways under PWA, but merely as a contribution to the car-building industry.

Thus far the railroads have shied from any approach for public funds for the purchase of equipment. Most carriers have plenty, even with the increase in traffic, and the railroads' experience in being debtors to the government has not been happy. It is noteworthy that every R. F. C. advance has been paid as expeditiously as possible.

But, there is an increasing undercurrent that if the interstate commerce commission became more lenient in permitting obsolete equipment to be wiped off, and the government was willing to loan sums at exceedingly small interest and over exceedingly long periods, the carriers might be interested.

Railroad Co-ordinator Eastman is making a gesture in distributing a questionnaire designed to develop the exact condition of the railroads. For each class of freight cars he is asking detailed information concerning age, capacity, weight, kind of construction, ledger values, accrued depreciation, net salvage value and retirement charge.

According to Mr. Eastman, despite large retirements the railroads still have on track many cars which could better be charged off, and he points to special authority by the ICC to depart from usual accounting practice.

THE co-ordination agreement between the departments of state and commerce in regard to foreign trade service makes the former the mailbag of the latter.

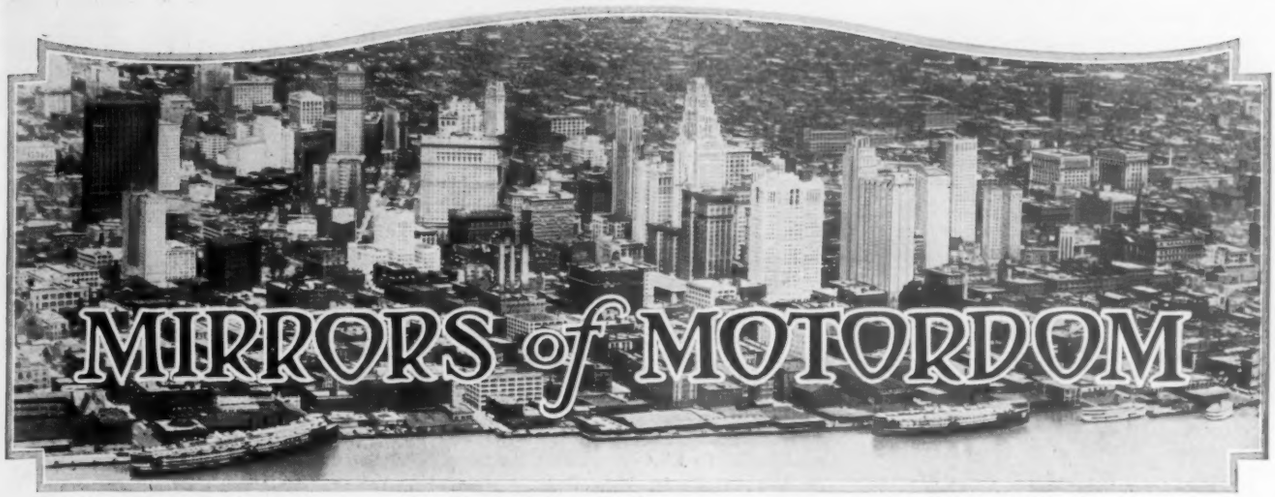
Instructions from Secretary Roper to field officers of that department will be through Secretary of State Hull's machinery. Inquiries from American exports and other business organizations touching upon the protection and promotion of American foreign trade will be answered by the consular service. But commercial attaches will have the primary responsibility for general economic reporting for the department of commerce.

The most radical departure from Hoover policy is that the government's service will be largely restricted to supplying trade information. Specific services such as selecting foreign agents for American firms or closing agency agreements "appear to be inconsistent with the proper performance of a tax-supported government agency" are the words of Secretary Roper.

"It is felt that exporters in this country are now sufficiently experienced in foreign trading and have acquired a mastery of the technique involved to an extent that they can hold their own against world competition," he declares.

FIFTEEN thousand men could be put to work in the manganese industry if the full domestic market, normally amounting to $30,000,000 a year, is made available to domestic

(*Please turn to Page* 67)




*DETROIT*

LIKE a blanket fog, NRA codes have been invisibly settling down this late summer over Detroit. Darkness developed its deepest tinge toward the close of August; speculation grew rife. NRA codes still permeate the daily conversation of Detroit, as they did and do in other American industrial cities. Codes dominate the coloring of the immediate outlook for Detroit's basic and major industry—automobiles.

But, as in all fogs, a clearing is inevitable. Contrasted to late August, early September has given all players a chance to see what their cards in the new deal look like. Labor day, 1933, finds shafts of light piercing the uncertainty. Anticipatory speculation, which is generally ungovernable and peculiar to prenatal codes, has been dissipated.

During this month the automobile industry will get its baptism of fire in code administration. To bring in steel at this point, that basic industry which joins with another basic industry—automobiles—in a focal point at Detroit, has also finished coasting through an August of not knowing what limitations in dealings and business relations a September would bring. Since, the NRA codes for both steel and automobiles have each passed respective approval. The stage is set for a performance.

The auto code is conceded as a model of simplicity with Detroit's leading industry succeeding in approval of a far simpler code than did steel. Disregarding the individualism of Ford in automobile's code and the macerated labor clauses in both, automobiles are governed by no lengthy discourses on competition, as is steel. The motor maker is to be guided in the future by no dictums of what he must sell his product for. Apparently, he will be as free as he always was to sell his automobiles for whatever and wherever he chooses.

Here the rub comes. Alone, the auto code is little more than a continuation of past freedom, but the commercial walls that steel's code raise hem in on this freedom. As has always been usual, the clash between the two industries is still focused on steel prices. Steel's code says basing points, delivered prices must prevail; by inference the buyer of steel—and this points at the motor builder—is permitted no alternative.

## Single Price on Steel Irks

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## Packard Is First 1934 Model

• • •

## Medium-Price Cars Look Up

The new deal in prices is on deck. September of 1933 will go down in history as without question the battleground when concessions die and single steel prices arise. It will be a bitter pill for the average automobile steel buyer to swallow when he can no longer dicker for a price. In fact, the steel buyer of the near future may be only a rubber stamp. Advances of $3 to even $9 a ton on bars, sheets and other automotive steels will not be uncommon, in order to bring concessions up to published bases plus extras.

So, in the meantime the automobile manufacturers specify against their third-quarter contracts on steel which have until Sept. 30 to run. On all new business, and this in turn obviously points to the fourth quarter, the single price on steel products is about to go into effect. Buyers will protest despite ulterior patronage to the spirit of the day, but steel, for once, looks adamant.

One important buyer in steel—in fact, one of the "big three"—has been laying in certain steel products it can anticipate using. Other buyers are specifying against their third quarter contracts only as needed. Preliminary new buying of changed sizes and specifications of steel for new models has not yet reached proportions.

UNLIKE a horse race, motor car manufacturers seem to be gathering stamina as they come thundering down the homestretch, the goal of which is the last assemblies of 1933 models. At least, they appear to be gathering strength because they are not noticeably losing it.

After August was almost as good as July from the standpoint of production (see p. 73) and the industry's total monthly assemblies still rested secure above the 200,000-unit mark for the fifth straight month, plans for September, at least at the present early-month recording, show no Waterloo reached yet.

Ford is going into September scheduling 58,000 assemblies; Chevrolet 60,000; Chrysler's total will be 50,000. In that three alone is 170,000 jobs. Add to it other General Motors' assemblies and a revival on the part of the independents and you have over 200,000 models.

Motordom will turn out cars the rest of this year just as long as people buy them. To a measure, much of present automobile buying is in replacement of cars that would have been bought in 1932 and 1931, but released of the fear of further depression the reservoir of buying has been tapped. The potentialities of this source are unestimable, but enormous.

Of more immediate answer to the sustainment are two factors in mesh to make fall sales above average. One is that it is a foregone conclusion that automobile prices will be higher next year. Another that trade-in allowances under the automobile dealers' NRA code to come will be stiffer and to a conformity.

Commentators on the industry hark back to 1921 to find a sequel to such uninterrupted assembly activity. Starting somewhat later than did 1933, motordom roared through the late summer and early fall of '21 in

high speed at a fast production clip. Every indication for the balance of this year points to a reiteration of this 1921 showing.

And, for once in the past three years, Detroit is willing to freely offer a guess on the new year. Nineteen thirty-four should be a good one for the automobile industry, banking on the first full effects of NRA being felt country-wide somewhere around the turn of the year and afterward. Detroit hazards a 3,000,000-car year for 1934.

AS THE country revives, the "forgotten man" class of automobiles is bound to come again into its own. By this is meant cars of the Buick, Studebaker, Nash, Hupp, Hudson and Chrysler proper line, to mention a few. In other words, the middle-priced cars, forsaken by the car-owning public as soon as depression and deflation of incomes first bared their teeth, may logically resume their places in the sun.

It isn't history to recall that at one time, before everyone thought in terms of Fords, Chevrolets or Plymouths when considering the purchase of a car, this type of middle-priced automobile shared prominently in the industry's production.

It is with this thought in mind that the sponsors of models in this price range of anything upward of $600 and yet less than $1500 are grooming their 1934 plans. Buick's novelty of independent front wheel suspension is rumored to be more than a consideration by Chrysler. Nash is changing its models. The 1934 Chrysler lines will present an appeal to the eye. All in this group will intensify 1934 efforts.

Therefore, a realignment of forces is about to be made by those producers of cars in more than the one-price range. In 1933, General Motors dressed up Pontiac, reduced its price, then proceeded to effectively make it a running mate for Chevrolet as an income unit. Without taking away from Pontiac its acknowledged 1933 niche, it is likely to foresee that Buick may forge ahead to carry a part of the burden of leadership.

At Chrysler, Dodge underwent similar moves to place its shoulder back of Plymouth as the second-line standard bearer for that company this year. By so doing it replaced DeSoto, sensation in Chrysler sales of 1932. Granting Dodge's place is continued into next year, it is obvious to expect DeSoto's appeal for the new year will be stressed.

PACKARD, first out Sept. 3 with its 1934 models, has assembled some 2000 of the new units and has them delivered in dealers' hands. Conservatism still rules Packard and little change, except in the design of the fenders, is evident in the new cars. Fenders, of heavier stock, follow more closely the contour of the wheels. Steel has not been bought in any large quantity for the new Packards, indicating assemblies will be minimized for the time being.

Plymouth is assembling at the unchanged rate of 30,000 models this month, representing sustainment of the advanced production rate when additional releases for material came through ten days ago. Dodge will make 16,000 cars in September. The balance of 14,000 models for Chrysler will be spread over DeSoto and Chrysler lines.

Chevrolet made 70,000 cars in August, representing an advance from the 60,000 to 65,000 models planned for that time in late July. Ford, steady at 2500 assemblies daily, turned out 55,000 models in the month just closed. Ford, by scheduling releases of material, indicates no shutdown this summer, or fall either.

Fords won the first seven places in an Elgin, Ill., stock car race recently that attracted national recognition but of the 14 cars racing, ten were Fords, two Chevrolets, one Dodge and one Plymouth . . . . . Rotary Electric Steel Co., Detroit, has not yet swung into quantity production of steel by its novel process. . . . . A large purchase of foundry iron was reported made by a leading automobile foundry in the Detroit district recently. . . . Packard was the first to sign the motor code; it has added 1000 additional men in the past three weeks to its payroll, making total employed over 5000 . . . . Campbell Metal Window Co. is announcing an air filter for conditioning the air in closed automobiles, providing of course that the driver keeps windows closed.

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# Died:

EDWIN A. MERRILL, 67, treasurer, Minneapolis Steel & Machinery Co., Minneapolis, for many years, and president for the four years preceding his retirement in 1927, at Rochester, Minn., Aug. 13.

□ □ □

Abraham Levine, 42, president, Levine Iron Works, Yonkers, N. Y., Aug. 20.

□ □ □

Edward I. Heinsohn, 57, graduate of Case School of Applied Science, authority on automobile tire rims, and founder in 1911 of the Cleveland Welding & Mfg. Co., at Cleveland, Aug. 23. Ill health forced him to retire several years ago.

□ □ □

John H. Lascelles, 32 office manager for Crane Co. at Buffalo, recently.

□ □ □

George J. Ruf, 67, president, Cleveland Steam Gauge Co., Cleveland, Aug. 28.

□ □ □

Otis J. Cessna, 59, with the sales department of the Albion Malleable Iron Co., Albion, Mich., Aug. 20.

□ □ □

Norman C. Ross, 60, turbine specialist for the General Electric Co. in the Cleveland district, at his home in Lakewood, O., Aug. 29.

□ □ □

Frank A. Colver, 78, who organized the Colver Machine & Iron Works, Frankfort, Ind., 51 years ago, recently.

□ □ □

Thomas M. Hardy, 52, for 25 years a manufacturer of metal stampings at Pendleton, Ind., at Indianapolis recently. He was a graduate of Purdue university.

□ □ □

Charles H. Hartley, 68, part founder of the forerunner of the Perfect Circle Co., Hagerstown, Ind., recently in Oshkosh, Wis.

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## Detroit Iron and Steel Club Holds Outing Sept. 9

The Iron and Steel Club of Detroit is preparing to hold an outing Sept. 9 at the Indianwood Country club, near Detroit, in the interest of promoting fellowship between prominent buyers of steel in Detroit and members of the club.

Unless detained by his physicians, Charles M. Schwab, chairman, Bethlehem Steel Co., Bethlehem, Pa., has promised to attend and speak. Other important steel mill executives are also going to Detroit for the gathering.

The day's events include golf, a buffet lunch, entertainment and a dinner in the evening at which Henry Roehmer, president, Sharon Steel Hoop Co., Sharon, Pa., will preside as toastmaster.

Invitations have been issued to over 125 directors of purchasers of the larger steel users in Detroit. Each member of the Iron and Steel club, about 40 in all, will have out-of-town guests from the steel mills represented.

The Iron and Steel club in Detroit is headed by A. J. Bopp, Bopp Steel Corp., as president. C. A. Poxson, Newton Steel Co., is vice president, and W. J. Clucas, Edgar T. Ward Sons Co., secretary-treasurer.

Directors are: E. M. Vehmeyer, Joseph T. Ryerson & Son Inc.. Russell Wyckoff, Empire Steel Corp.; H. N. Arbuthnot, Allegheny Steel Co.; and A. D. Stephenson, Thomas Steel Co.

# Industrial Men in the Day's News

## C. H. Reynolds, President, Sheffield Machine & Tool Co.

FROM district sales agent to president of his company represents ten years in his life.

SALESMANSHIP is his first preference—hence he continues "in the field" for the company he heads.

MEMBER of the Society of Tool Engineers, he knows gages. His marksmanship is almost as accurate.

PRESIDENT—and sales representative. This title identifies C. H. Reynolds, several months ago elected head of the Sheffield Machine & Tool Co., Dayton, O., and also reveals where his keenest interest in the business lies—salesmanship.

Backed by a loyal and competent organization at Dayton, getting out the products for which the company is chiefly known—standard and special precision gages—the president devotes a large share of his time selling them in the Michigan territory, with office in Detroit.

Born in eastern New York, where he received his education and served a mechanical apprenticeship, in his early twenties he joined the throngs that moved to Michigan automotive centers. Followed some years in mechanical pursuits with automobile companies; then the urge to sell asserted itself and he became a representative of the Vanadium Alloys Steel Co.

It was ten years ago that he decided to engage on his own account in the business of selling, and obtained the Michigan agency for the Sheffield company and also the City Machine & Tool Works, Dayton. Interests identified with the latter company recently acquired a majority stock interest of the Sheffield company, whereupon Mr. Reynolds was elected president.

Both of these companies maintain their separate corporate identities. O. M. Poock continues as president of the City Machine company, and also is secretary-treasurer of the Sheffield company. L. F. Poock remains general manager of the City Machine company, and also is vice president and general manager of Sheffield. Though he is one of the three who now control the Sheffield company, Mr. Reynolds prefers to represent it "in the field." Electric and visual gages, accurate to within millionths of an inch, are some of the company's products. Mr. Reynolds is a member of the Society of Tool Engineers.

Mr. Reynold's main hobbies are golf and trap shooting. He is a member of the Red Run Golf club of Royal Oak, Mich.; in his first year of trap shooting he finished second in the Grand American handicap.

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ED. CAMPBELL, since Feb. 1, 1920, in charge of American Car & Foundry Co. engineering department at St. Louis, was promoted to assistant general mechanical engineer of the company, with headquarters at Berwick, Pa., effective Sept. 1. He became second in command to V. R. Willoughby, general mechanical engineer of the company. The promotion of Mr. Campbell occurs in connection with the further concentration of engineering activities of the company at Berwick.

Allen W. Clarke, mechanical engineer, was transferred Sept. 1 to take charge of the St. Louis branch of the engineering section, with headquarters at St. Charles, Mo. Mr. Clarke formerly was local engineer at the company's Jeffersonville, Ind., plant.

Mr. Willoughby continues to divide his time between the general offices in New York and the Berwick branch of the engineering section.

□ □ □

George H. Corliss, formerly associated with the J. A. Fay & Egan Co., Cincinnati, Kewaunee Mfg. Co., Kewaunee, Wis., and the S. A. Woods Machine Co., Boston, has been appointed sales promotion and advertising manager of the Lewis-Shepard Co., Boston, manufacturing material handling equipment. Mr. Corliss has written many articles on marketing, merchandising, sales promotion and advertising.

□ □ □

C. B. Auel, Pittsburgh, has been appointed chairman of the Pennsylvania state committee on safety in the iron, steel and glass manufacturing industries.

Other members of the committee include J. E. Culliney, Bethlehem Steel Corp., Bethlehem, Pa.; E. F. Blank, Jones & Laughlin Steel Corp., Pittsburgh; E. F. Harris, Mesta Machine Co., Pittsburgh; W. F. Garrard,

(*Please turn to Page* 66)

# EDITORIAL

## Will Penalties Win Wherein Moral Suasion Failed?

ON AUG. 29, when approximately 160 companies had filed prices under the terms of the recently approved code of fair competition, the iron and steel industry definitely entered a new phase of its experiment in co-operation under government auspices.

That date marks the beginning of a serious attempt on the part of sellers of iron and steel products to introduce long overdue reforms in their selling policies and desirable refinements in their intricate price structures. It is the most sweeping change in market practice yet initiated by the industry. It represents the greatest opportunity ever afforded producers of iron and steel to improve relations with their customers.

The industry should put every ounce of its strength behind this great movement. It would be a great calamity if it should fail. Unlike the wage and hour provisions of the code, which were requirements stipulated by the government, the reforms in prices and terms of payment were put into the code on the initiative of the iron and steel producers themselves. Having voluntarily set their own goal, they and no one else will be held responsible for success or failure in their attempt to attain it.

### Success of New Deal in Price Policies Demands Living Up To Spirit of Code

The challenge will be met successfully if every interested individual does his part. Doing one's part means more than merely living up to the letter of the code. It means enthusiastic and wholehearted support of its spirit.

For instance, if the executives of a few companies start deliberately to look for loopholes whereby they can legally continue old abuses, they will not be doing their part. Some of the individuals who have been the worst offenders in unethical practices in the past will be tempted to "cut corners" even under the code. Possibly one or more of these business raiders already have tried "chiseling" tactics under the code. Within 24 hours after the new prices became effective, a rumor was being circulated that an unidentified producer had offered a certain steel product at terms more liberal than prescribed in Schedule G.

This particular rumor may or may not be founded on fact. It is possible that the customer misunderstood the terms of the offer, or, it may be that he concocted the story out of thin air in order to test the mettle of other sellers. At any rate, rumors of this kind will be heard time and time again throughout the next few months. Some of them will be true; others false.

Such evidences of insincerity are to be expected. It is futile to believe that ingrained traits of human nature can be changed overnight. Code or no code, a small minority always will try to beat the game.

Fortunately, the code provides machinery for dealing with companies which violate its terms. For the first time in many years the constructive element of the industry has a weapon to use against the destructive tactics of the minority.

### Penalties Must Be Administered Sternly and Justly To Protect Interests of Majority

Success or failure of the market reform movement will depend in large measure upon the judgment with which this powerful weapon is employed. Administration of Article X, dealing with penalties and damages, will require the exercise of great care and discretion by the board of directors. In many cases of reported violations it will be difficult to establish clear-cut guilt. Borderline infractions must be handled delicately. But when unmistakable proof of flagrant violation is established, the prescribed penalty should be administered promptly and without fear or favor. Only by such stern, but just, action by the board, can the interest of the majority be protected.

Perhaps the emphasis placed upon code violations in the foregoing paragraphs may prove distasteful to some readers. In justification, let it be remembered that the history of this and every other industry shows that self-imposed schemes of co-operation depending solely upon moral suasion invariably have failed. All through the depression industrial executives have been asking for "police powers" with which to enforce rules for fair competition.

Now that these powers are at hand, ready for instant use when needed, the time-worn excuse for the failure of industrial self-government no longer will hold water. The steel industry now has a good code with teeth in it. We are confident that with the organization, united front and leadership, which was demonstrated so effectively in the code negotiations, steel will carry its marketing reform program through to a successful conclusion.

# THE BUSINESS TREND

## Business Is Gaining Strength For Autumn Drive

BUSINESS records continue to reflect uncertainty. Further slipping of the rate of steelworks operations in the last half of August and into the first week of September is offset in part by slight improvement in car loadings, soft coal production, electric power output, etc. Automobile output in August did not drop as much as had been expected.

The rise and decline of business from March to August is indicated clearly by the indexes of the federal reserve board:

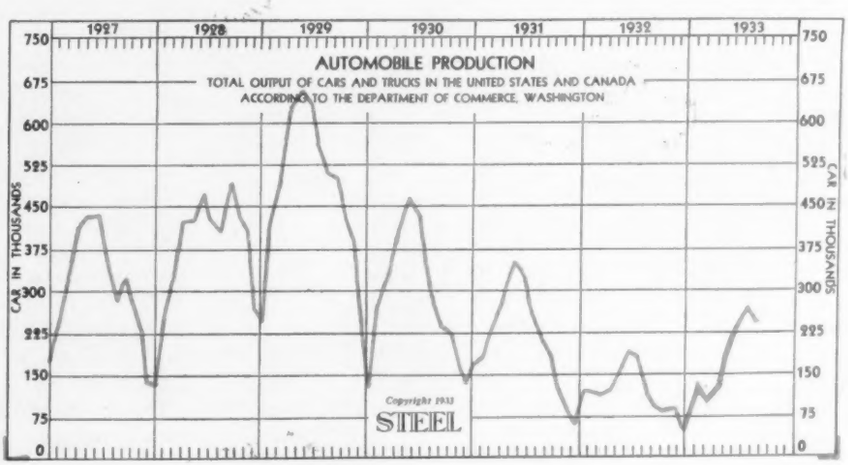
| | Industrial Production | Factory Employment | Factory Pay Rolls | Freight Car Loadings | Depart. Store Sales |
|---|---|---|---|---|---|
| March | 60 | 56.6 | 36.9 | 50 | 67 |
| April | 67 | 57.7 | 38.6 | 53 | 67 |
| May | 77 | 60.6 | 42.0 | 56 | 67 |
| June | 91 | 64.8 | 46.2 | 60 | 68 |
| July | 98 | 70.1 | 49.9 | 65 | 69 |
| Aug. (est.) | 91 | 70.0 | 50.0 | 63 | 71 |

These barometers, which are said to furnish official statistical guidance for the government, are based upon the average for 1923-25 equals 100. The estimates for August show that the sharp recession in industrial production was not perceptibly reflected in employment and payrolls. This may properly be credited to the influence of NRA. However, a reduction in industrial activity of this order could not continue long without seriously affecting employment and payrolls, NRA notwithstanding.

Business sentiment is improving, largely in the belief that industry—even in the present period of uncertainty—is quietly gaining strength for a fall drive. The first wave of confusion over code acceptance by NRA has passed. In its place is adjustment incidental to the administration of codes. Meanwhile the threat of higher prices is more imminent. This, coupled with the seasonal influences which should appear during this month and October, is expected to stimulate business over a large portion of the remainder of the year.

### Business May Resume Upward Trend If Excessive Ballyhoo Does Not Incite Backfire

Barring unforeseen upsets, purchase of materials for motor cars should increase before the end of this month. Buying by railroads should expand moderately. Long overdue public works projects may get under way more rapidly.




**1933**

| | |
|---|---|
| July | 239,628 |
| June | 260,645 |
| May | 227,699 |
| April | 188,922 |
| March | 124,581 |

**1932**

| | |
|---|---|
| July | 116,615 |
| June | 190,218 |
| May | 192,505 |
| April | 155,136 |
| March | 127,277 |

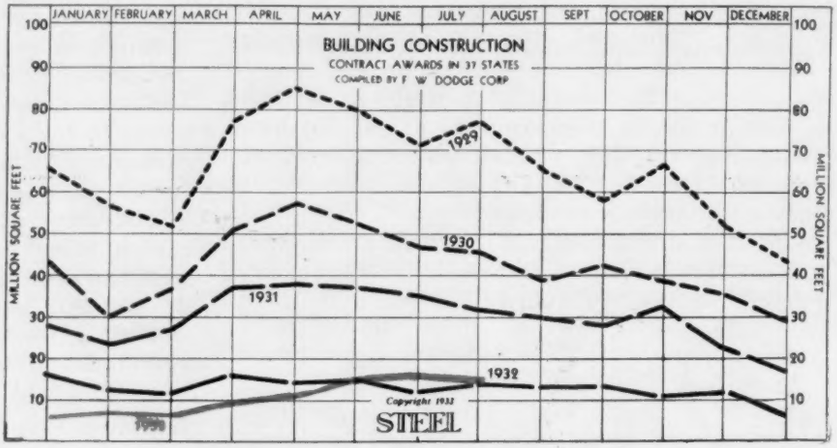
| | Per Cent |
|---|---|
| July, 1933 | 40.4 |
| June, 1933 | 27.9 |
| July, 1932 | 33.8 |

### Index of Machine Tools Continue Upward

With new orders continuing to show an increase the machine tool industry is recovering from the long down trend that began the latter part of 1929. According to the National Machine Tool Builders' association, the three-month moving average for July was 40.4 compared with 27.9 in June and 33.8 in July, 1932. Shipments are showing a steady increase and have returned to a level of last fall, increasing nearly 5 points in July the index stood at 35.6 compared with 26.6 for the corresponding month last year.

### July Building Awards Decline Sharply

Building awards as measured in new floor space in 37 eastern states declined over a million and a half square feet during July. According to the latest reports of F. W. Dodge Corp., total construction for July involved 14,605,600 square feet as compared with 16,199,500 in June and 14,399,000 square feet in July, 1932. The valuation of construction contracts awarded in July was $82,693,100, a decline from the $103,255,100 valuation of the preceding month.




| | Square Feet |
|---|---|
| July, 1933 | 14,605,600 |
| June, 1933 | 16,199,500 |
| July, 1932 | 14,399,000 |

| Exports | | Imports | |
|---|---|---|---|
| July, 1933 | $145,000,000 | July, 1933 | $143,000,000 |
| June, 1933 | 119,809,000 | June, 1933 | 122,263,000 |
| July, 1932 | 106,830,000 | July, 1932 | 79,421,000 |

### Export Trade Balance Small As Foreign Trade Advances

The total value of this country's foreign trade was again increased in July. The value of merchandise exported in July was $145,000,000 as compared with $119,809,000 in June and $106,830,000 in July, 1932. Not since October of last year have merchandise exports been higher in value. Imports were up sharply to $143,000,000 resulting in a small export trade balance of $2,000,000. Cotton exports in July contributed materially to the larger movement abroad in that month.

# Adjusting Crane Control by Speed-Torque Curves

## Part III—Crane Lowering Connections

BY A. A. MERRILL
General Electric Co.

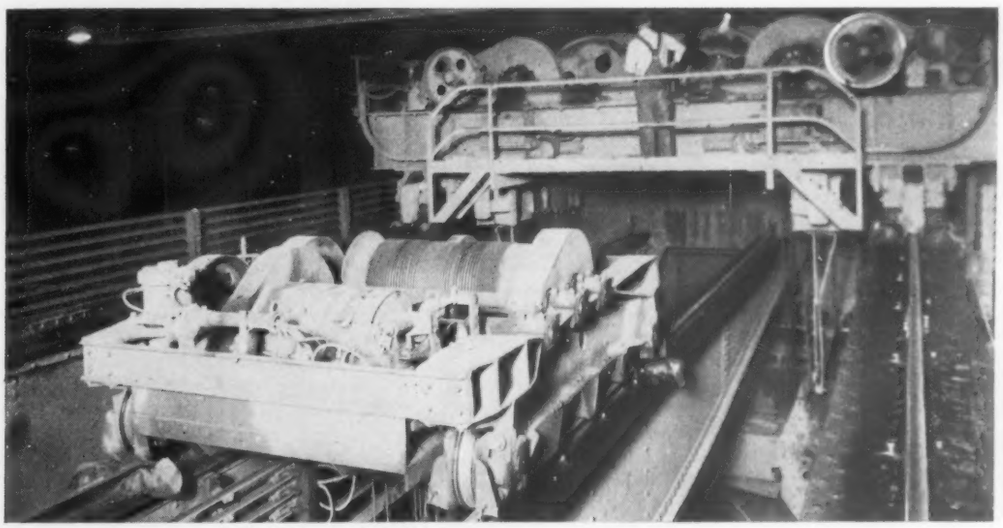
ADJUSTMENT of series motor resistors and their effect upon the lowering and dynamic braking of crane loads is discussed in the accompanying article, the last of a series of three articles. Part I, appearing in the July 31 issue of STEEL, explained speed-torque curves and how they picture crane performance. Part II, presented in the Aug. 21 issue, was concerned with hoist, trolley and bridge connections. The author is associated with the industrial engineering department, General Electric Co., Schenectady, N. Y.

A SERIES motor inherently is possessed with the characteristic of high speeds at light loads. With an overhauling load, this characteristic is amplified, and the motor tends to run away. It would seem, therefore, that this motor is constitutionally not adaptable to the function of lowering of heavy crane loads.

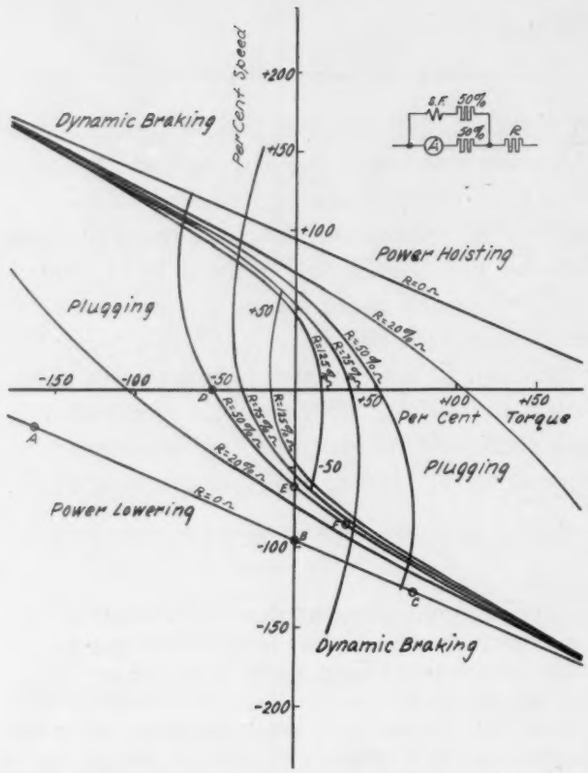
A circuit has been developed, however, which turns this motor into an ideal dynamic braking medium, and its altered characteristics make it superior to almost all motors for the operation of this function. This circuit, which involves the shunting of the field circuit across the armature circuit, has been in use for many years, and now is used by practically all crane hoist series motor controllers. This article will discuss this connection, methods of altering the control and the judging of results by the four-quadrant speed-torque chart.

Upon first thought, one would suppose that this connection would give shunt motor characteristics. It does, in fact, if the field circuit is connected directly to the constant line voltage. The field current then is constant, and the speed-torque curve becomes a straight line, neglecting armature reaction. In most cases, however, a line resistor is included in the circuit. The field current then is not constant, but varies with the voltage drop across the line resistor, which in turn, varies with the armature current.

In fact, during dynamic braking, a current is forced through the field circuit by the counter



*Main and auxiliary trolleys of hot metal ladle crane in open-hearth department of Continental Steel Corp., Kokomo, Ind.*



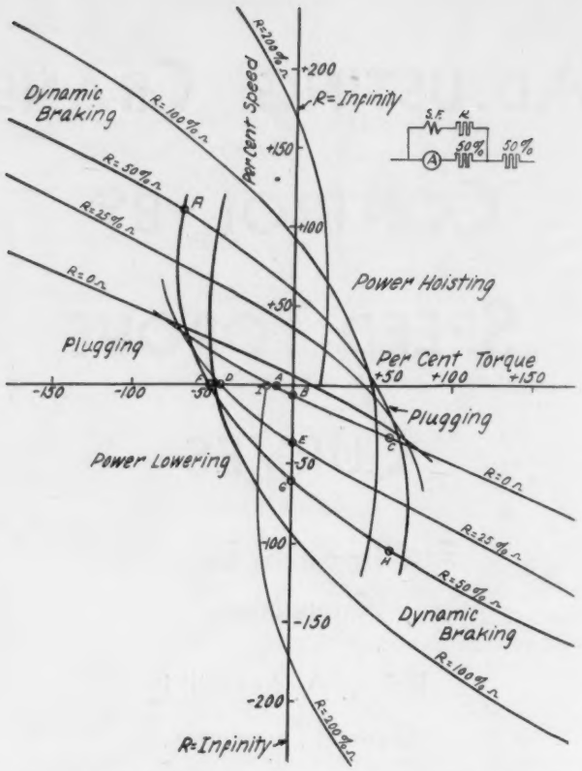




*Fig. 8 (Left)—Speed-torque curves for a series motor with field shunted across armature and variable line resistor. Fig. 9 (Right)—Speed-torque curves for a series motor with field shunted across armature and variable field resistor*

e.m.f. generated by the armature, thereby strengthening the field. This characteristic of a strengthening field during dynamic braking results in excellent dynamic braking speed regulation, for the curves tend to flatten out in the dynamic braking quadrant, so that the motor delivers strong torque at definitely limited speeds.

To make the picture complete, two sets of curves are shown on each of the accompanying charts. The upper set represents conditions when the motor is connected for rotation in the hoisting direction. This set may be largely ignored, for this connection is universally used for the lowering of a load. The latter is represented by the lower set of curves, which represents conditions when the motor is connected for rotation in the lowering direction. If either the connections to the field or to the armature are reversed, the operation of the motor will change from one set of curves to the other.

### Connections Are Illustrated

Figs. 8, 9 and 10 represent this dynamic braking connection. Fig. 11 illustrates the common emergency dynamic braking circuit. With the latter, power is disconnected from the motor, and its operation changes to that of a series generator.

First, we shall consider the field shunted across the armature with variable line resistor. Fig. 8 illustrates the effect of a change of the line resistance on the operation of the motor, with this dynamic braking connection. It will be noted that a resistor amounting to 50 per cent ohms is inserted in each of the field and armature circuits. (100 per cent ohms is equal to rated line voltage divided by rated full-load motor current). This value of resistance, 50 per cent, figuratively was "picked out of the sky," and is merely used as a definite point on which to build our discussion.

If the line resistor is omitted, referring to the curves marked "R = O ohms," Fig. 8, the field circuit is connected directly across a constant line voltage, and the speed-torque characteristic becomes a straight line, neglecting armature reaction. The operation of the motor under these connections is as follows:

As the motor accelerates from points *A* to *B*, it is exerting a lowering torque on the load, which assists gravity in accelerating the load in the lowering direction. The motor counter e.m.f. is rising, thereby decreasing the armature current, and consequently the torque delivered by the motor. At point *B*, the counter e.m.f. is equal to the line voltage, and armature current is decreased to zero. As the motor continues to accelerate, under the impetus of gravity, the counter e.m.f. rises above line voltage, and drives a reverse current through the armature. This reverse current passes through the field circuit, displacing the line current, and a dynamic braking torque is exerted.

As soon as the dynamic braking current rises to equal the field current, displacing all of the line current, the latter becomes zero. Any increase of speed beyond this point will result in current being returned to the line. The braking caused by excess current is then called "regenerative braking." The point of zero line current is located slightly off of the field of Fig. 8 at + 225 per cent torque and—195 per cent speed. At this point all of the curves intersect, for, since line current is zero, the value of line resistance has no effect on the conditions of speed and torque.

### Effect of Line Resistance

If line resistance is inserted in the circuit, in this case, 20 per cent, 50 per cent, 75 per cent or 125 per cent ohms, the following changes may be noted:

1. Starting torque is decreased, because of the reduced armature and line current. For example, the torque exerted at standstill, with no line resistance, amounts to 214 per cent torque (outside of the bounds of Fig. 8), which is reduced to 52 per cent torque at point *D* when a 50 per cent line resistor is inserted in the circuit.

2. The speed-torque characteristics become curves, rather than straight lines, for field current is no longer constant.

3. The speed at zero torque is slightly reduced, as from point *B* to point *E*.

4. Dynamic braking speed regulation, or change of speed with load, is made slightly poorer, as may be noted by the slope of curve section *E-F* as compared with *B-C*.

Second, we will consider the field

shunted across the armature with variable field resistor. Fig. 9 illustrates the effect of varying the resistance of the field circuit. With zero resistance inserted in this circuit, the field current is very strong, but the armature current is weak, for the armature circuit is shunted by the low-resistance field circuit. Starting torque, therefore, is, very low. If the field circuit actually has a resistance of zero ohms, there would be a dead short across the armature circuit, and starting torque would be zero. The resistance of the field winding itself is still in the circuit, however, so that some starting torque is produced.

### Another Circuit Studied

As the field circuit resistance is increased, the following changes may be noted:

1. Starting torque is increased, and then, on further increase of field resistance, is decreased. In Fig. 9 this is illustrated by the increase of starting torque from *A* to *D* to *F*, and then a decrease to *I*. The reason for this behavior lies in the fact that as the field resistance is increased, field current is weakened and armature current strengthened. Since starting torque is proportional to the product of field strength and armature current, and one is increasing while the other decreases, it may be seen that the product of the two rises, aproaches a peak, and then falls away.

2. Speed at zero torque rises, as from *B* to *E* or *G*.

3. Dynamic braking speed for a given load rises, as from *C* to *H*.

4. Dynamic braking speed regulation is made slightly poorer, as may be seen by the increase of slope of *G-H* as compared with *B-C*.

Third, we will deal with the field shunted across the armature with variable armature resistor. Fig. 10 also illustrates this familiar connection, but in this case the armature circuit resistor is made variable. There is one curve that is common to Figs. 8, 9 and 10, and may serve to tie them together. This is the 50 per cent ohms curve. It represents conditions with a 50 per cent section of resistance in each of the field, armature and line circuits.

The outstanding point to be noted in this family of curves is that they all cross the zero torque line at the same point. As armature resistance is changed, the curves are merely rotated about this point. The reason for this is not hard to find. At zero torque, armature current is also zero. With no armature current, it may be seen that the resistance of the armature circuit has absolutely no effect on the speed at this point.

As the armature resistance is increased from zero, the following changes will be noted:

1. Starting torque is first increased, and then decreased, as from *A* to *D*, and then back to *E* and *G*. The reason for this is the same as that explained for a variable field resistor. As the armature resistance is increased, armature current falls, while field current rises. Starting torque rises, reaches a peak, and falls away.

2. Dynamic braking speed regulation is made poorer, as may be seen by the increased slope of curve section *B-H* as compared with *B-C*.

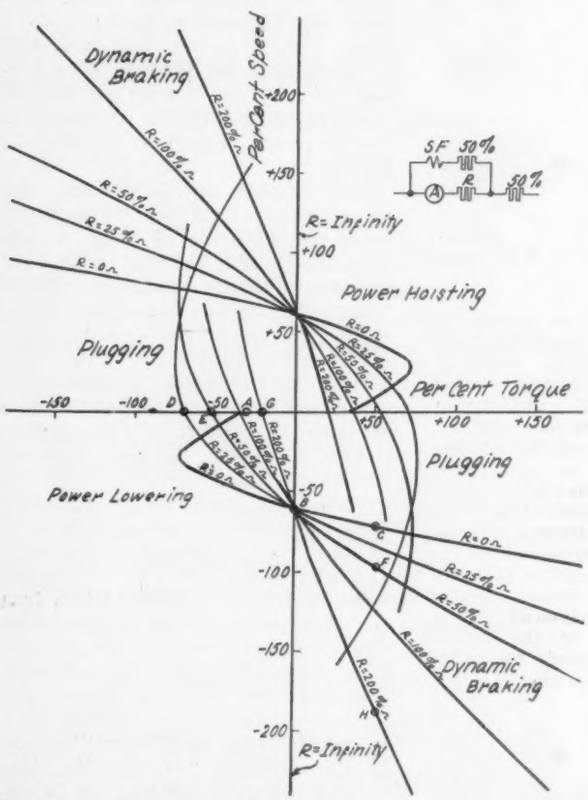
3. Dynamic braking speed at any given load is increased, as from *C* to *F* or *H*.

Fourth and last, we shall consider emergency dynamic braking connections with variable load resistor. Fig. 11 illustrates a few speed-torque curves obtainable from the emergency dynamic-braking circuit. The principal difference between this connection and that illustrated by Fig. 8, 9 and 10 is that the motor is now entirely disconnected from the line. For this reason, no starting torque is produced.

### Motor Becomes Generator

If the motor is driven by an overhauling load, the residual magnetism of the field causes a voltage to be generated by the armature, which circulates a current through the loop circuit. If this current is in the proper direction, the field is strengthened, and the motor acts as a series generator. If this circuit is used, care must be taken to see that the field and armature are connected in the proper direction so that the current tends to strengthen the series field, rather than weaken its residual magnetism. If the latter result is obtained, very little braking torque is produced.

If the load resistor is entirely



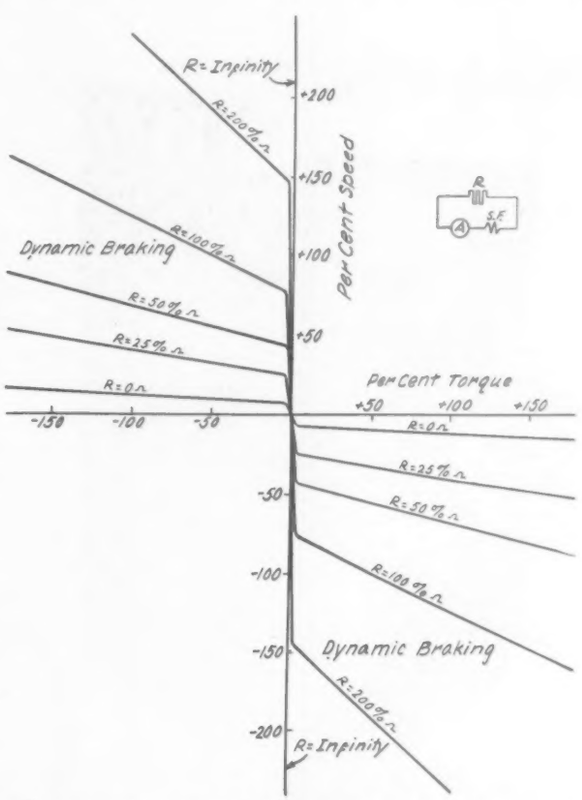




*Fig. 10 (Left)—Speed-torque curves for a series motor with field shunted across armature and variable armature resistor.*
*Fig. 11 (Right)—Speed-toque curves for a series motor with emergency dynamic braking connections and variable load resistor*

shorted out, curve marked "R = 0 ohms," a low counter e.m.f. and consequently a low speed, results in high circulating current and high torque. As resistance is added to the circuit, a higher counter e.m.f. is necessary to generate a given current and torque, so that the curves are raised toward higher speeds. The second effect to be noted is that speed regulation is poor for high values of load resistance. This may be seen by the increase in slope of the curves as they progress toward higher resistance values.

In conclusion, it is hoped that the series of charts included in these articles will prove of real value in pointing the way toward correct adjustment of crane control. By their use, any desired changes of characteristics of operation can be interpreted at a glance to indicate an increase or decrease of a definite section of resistance.

## Discussions To Lead Wire Association's Meeting

Drawing of high and low carbon wire; welding rods preparatory to drawing; cooling of tungsten carbide drawing dies; checking and flaking of drawing dies; necessity for sulling; bright annealing furnaces; methods for giving true lay to wire as it is being wound; and other details of wire drawing practice, are subjects slated for discussion at the meeting of the Wire association in Detroit, Oct. 3-5, at the Book-Cadillac hotel. The meeting is to be held in conjunction with the National Metal congress and exposition. At the same time the newly formed Wire Machinery Builders association will meet.

Meetings of the Wire association will be held evenings, starting at 8 p. m., with technical papers limited to one per session, thus making available the major portion of time for discussion. R. E. Brown, 17 East Forty-second street, New York, is secretary.

## Explains Pipe Welding by Oxyacetylene Process

How to reduce welding time on any kind of a piping job; how to make stronger joints with less outlay for welding rods and gases; and how to design, lay out, construct, erect and maintain a welded piping system are some of the subjects discussed in a 160-page book, "Fabrication of Oxweld Piping," just published by Linde Air Products Co., 30 East Forty-second street, New York.

Step-by-step procedures for oxyacetylene welding steel, cast iron, copper, brass, and lead piping and for making fittings on the job contribute to the usefulness of this book, in which 75 illustrations and 20 ready reference tables explain problems connected with the welding of building and industrial piping.

Other features are chapters on testing and qualifying welders for pipe work; on inspection methods while pipe welding is in progress; on methods of testing welded joints; and on estimating costs.

Readers of STEEL may obtain copies of this book without charge by addressing the Linde company.

## Describes Spray Nozzles For Descaling Work

Aldrich Pump Co., Allentown, Pa., has issued data sheet No. 61 dealing with its spray nozzle for descaling purposes. Using these nozzles, effective descaling is accomplished by the impinging force of a thin solid jet of water, produced by high pressure, on the material treated. The scale is broken and loosened by this force and then washed off by the deflected stream of water.

This method of descaling is applicable in the manufacture of blooms, bars, strips, tubes and shapes in steel, copper, brass and other alloys.

The data sheet describes the method of operation and construction of the nozzles and presents tables showing the impinging forces of various sizes of nozzles.

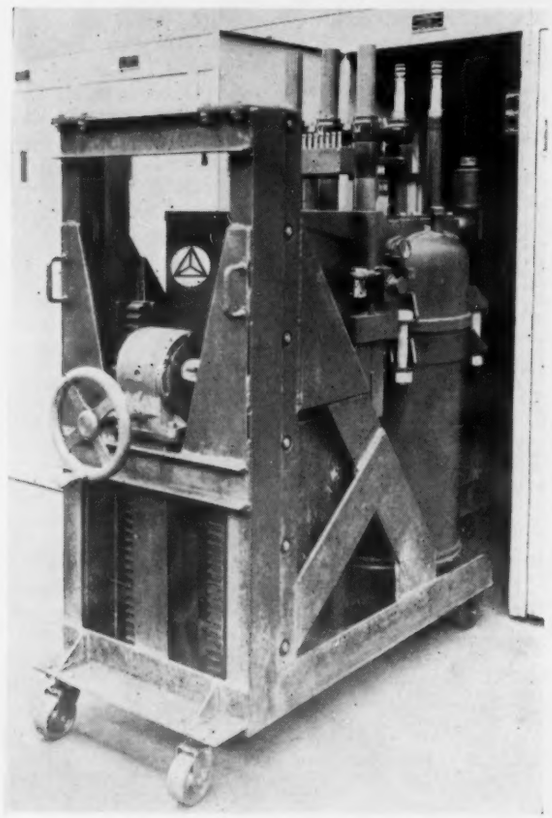
## A.S.M.E. Arranges Meeting During Metal Congress

One of the features of the fifteenth annual National Metal congress and exposition, to be held in Hotel Statler, Detroit, Oct. 2-6, will be a meeting on Wednesday morning, Oct. 4, under auspices of the machine shop practice division of the American Society of Mechanical Engineers.

Two papers are scheduled for presentation as follows: "Characteristics and Methods of Tests of Automotive Brake Drums," by C. L. Eksergian, chief engineer, Budd Wheel Co., Detroit; and "Simplicity —the Solution of Extreme Accuracy in Quantity Production," by Gordon W. Evans, vice president in charge of manufacturing, Kelvinator Corp., Detroit. A visit to the Kelvinator Corp. plant has been arranged for the afternoon.

This A. S. M. E. meeting will be one of 20 separate technical sessions of the week. Complete programs also will be sponsored by the American Society for Steel Treating, iron and steel and institute of metals divisions of the American Institute of Mining and Metallurgical Engineers, the American Welding society and Wire association.

The National Metal exposition will be open during the week in Convention Hall. According to W. H. Eisenman, director of the exposition, space reservations far exceed those for last year's show in Buffalo.



*INHERENT advantages of steel are demonstrated by the growing tendency of mounting electrical equipment in sheet steel housings. Herewith is shown a modern 15,000 - volt metal-clad switchgear equipment in which all switches, insulating supports, bus bars and other conductors are totally enclosed in welded steel. Economy, neater appearance and increased safety to operators are the net results. The equipment is a product of the Delta-Star Electric Co., Chicago*

# MOLY

## intensifies corrosion resistance in other alloys

MOLYBDENUM is unique in that small amounts of it intensify the desirable characteristics of other alloys. Thus it saves in total alloy costs! Furthermore, it improves many physical properties in iron and steel — always giving a better, and usually cheaper metal, for any definite application.

Take Copper Molybdenum ingot iron for example. It is the best known of all the corrosion resisting irons and steels, being extensively and successfully used to solve problems of atmospheric and mild liquid corrosion. This is because the Moly addition permits a greater copper percentage in solid solution in the iron. In the "18-8" stainless steels, 2½ to 4% Moly is being added to increase corrosion resistance. In boiler tubes and heat exchangers, Nickel Molybdenum steel has proved its unusual ability to resist corrosion.

Moly improves any iron or steel — at low cost. It increases machinability, tensile strength, creep strength and resistance to wear. The modern Climax laboratories in Detroit and the Climax metallurgists are prepared to show you how. Tell us your problems. Ask for details about our free engineering and experimental services and an important new book: "Molybdenum, 1933." Climax Molybdenum Company, 295 Madison Avenue, New York City.

VISIT THE CLIMAX BOOTH—No. 49—AT THE NATIONAL METAL CONGRESS

**CLIMAX Mo-lyb-den-um**

# New Machine Cleans Billets Rapidly and at Low Cost

A NEW machine for the abrasive cleaning of metal products is being used by a leading steel company to clean billets preparatory to chipping. Improvement in quality of work produced and a reduction in costs as compared with the pickling process, which operation of this machine eliminates, are reported after several months' use.

This equipment, known as the Airless Wheelabrator, is manufactured by the American Foundry Equipment Co., Mishawaka, Ind., and makes use of centrifugal, tangential and air-dynamic forces rather than compressed air in impinging the abrasive against the work being cleaned.

Introduced a short time ago, the machine is adapted for use in the foundry industry in cleaning castings, as well as in the steel industry where it is intended to replace acid pickling, wire brushing, abrasive scrubbing and other methods of cleaning sheets, shapes, billets, slabs and forgings.

Design of the equipment is simple, consisting essentially of a revolving wheel which throws an abrasive from vane outlets at its circumference against the work which moves underneath through an enclosed chamber. The abrasive is fed from an overhead storage hopper to the interior of the wheel at a point slightly below the wheel hub, from where it passes out of the vanes at high speed. Vanes are made of chilled cast iron and may be renewed when worn. Introducing the abrasive below the center of the wheel causes the bulk of it to be thrown downward upon the work when ejected rather than upward. The abrasive collects at the bottom of the chamber and is returned to the hopper by a continuous elevator system.

**Cleans 60 Feet a Minute**

In the steel plant installation referred to, and shown in the accompanying illustration, 4 x 2-inch billets, 30 feet long, are cleaned on one side. This material is being rolled into automobile bumper stock and requires a surface free from defects. Billets are fed into the machine on motor-driven rolls at a speed of about 60 feet a minute. Capacity of the machine is variable, depending on the rate of operation and type of work being done; in this particular instance an output of more than 200 tons has been attained during a ten-hour period.

A 20-horsepower motor is employed to drive the centrifugal wheel, but actual requirement usually does not exceed 15 horsepower. The wheel is 19 inches in diameter, 2⅞ inches wide at the outlets of the vanes and operates at 2250 revolutions per minute.

Type of abrasive used in the machine depends on the material being cleaned and quality of finish desired. In cleaning billets, 38 grit, crushed cast shot was found to be most suitable. The cleaning chamber is at atmospheric pressure during operation and with openings sealed little dust is permitted to escape. Dust collecting equipment, operating at the point of exit of the billet from the chamber, traps what dust emerges at that point.

One man is employed to operate the machine and two to handle the billets before and after the cleaning process The illustration shows the device with side doors open, giving a view of the centrifugal wheel.

While definite cost figures for the operation of this equipment are not available, a saving has been demonstrated over the cost of pickling and chipping billets during the period it has been in service, the user reports. The abrasive cleaning of billets is said to facilitate the subsequent chipping process, as well as increase its speed, by making surface defects more discernible. Less than 4 pounds of abrasive shot is being consumed per ton of billet cleaned.

---

Exhibits of heavy-coated galvanized roofing sheets bearing the "Seal of Quality" of the American Zinc institute, 60 East Forty-second street, New York, have been arranged by the institute for the following fairs and expositions: Illinois State fair, Springfield, Ill., held two weeks ago; Wisconsin State fair, Milwaukee, held last week; Eastern States exposition, Springfield, Mass., Sept. 17-23; and the State Fair of Texas, Dallas, Tex., Oct. 7-22.

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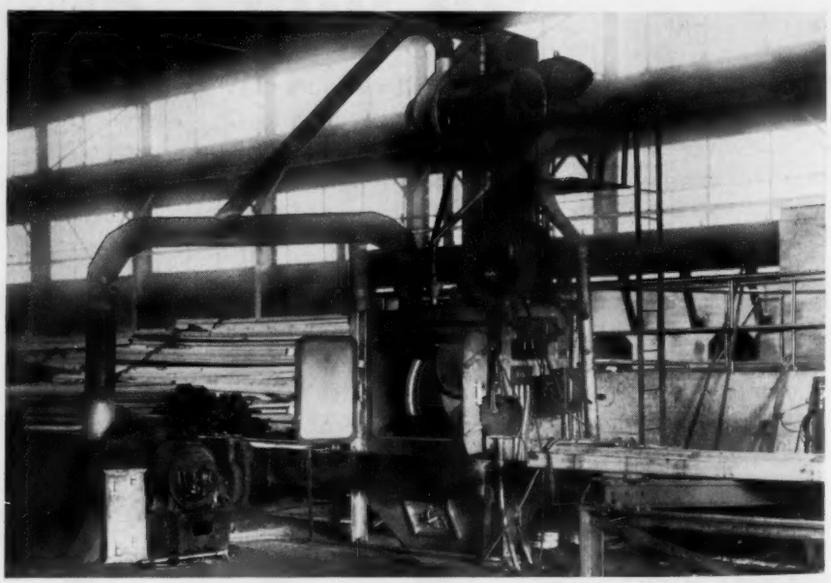
## Steel Treaters Consider Adopting New Name

American Metals society will be the new name of the American Society for Steel Treating if a recent resolution of the board of directors is ratified by the membership.

Reasons given for the change are: The society has extended its field beyond the single aspect of steel treating; considerable confusion has arisen because of the implied limitations of the present name; the society's activities include a great proportion of nonferrous as well as ferrous interests; and the new name would be in harmony with the society's purpose "to promote the arts and sciences connected with the manufacture, treatment and uses of metals."

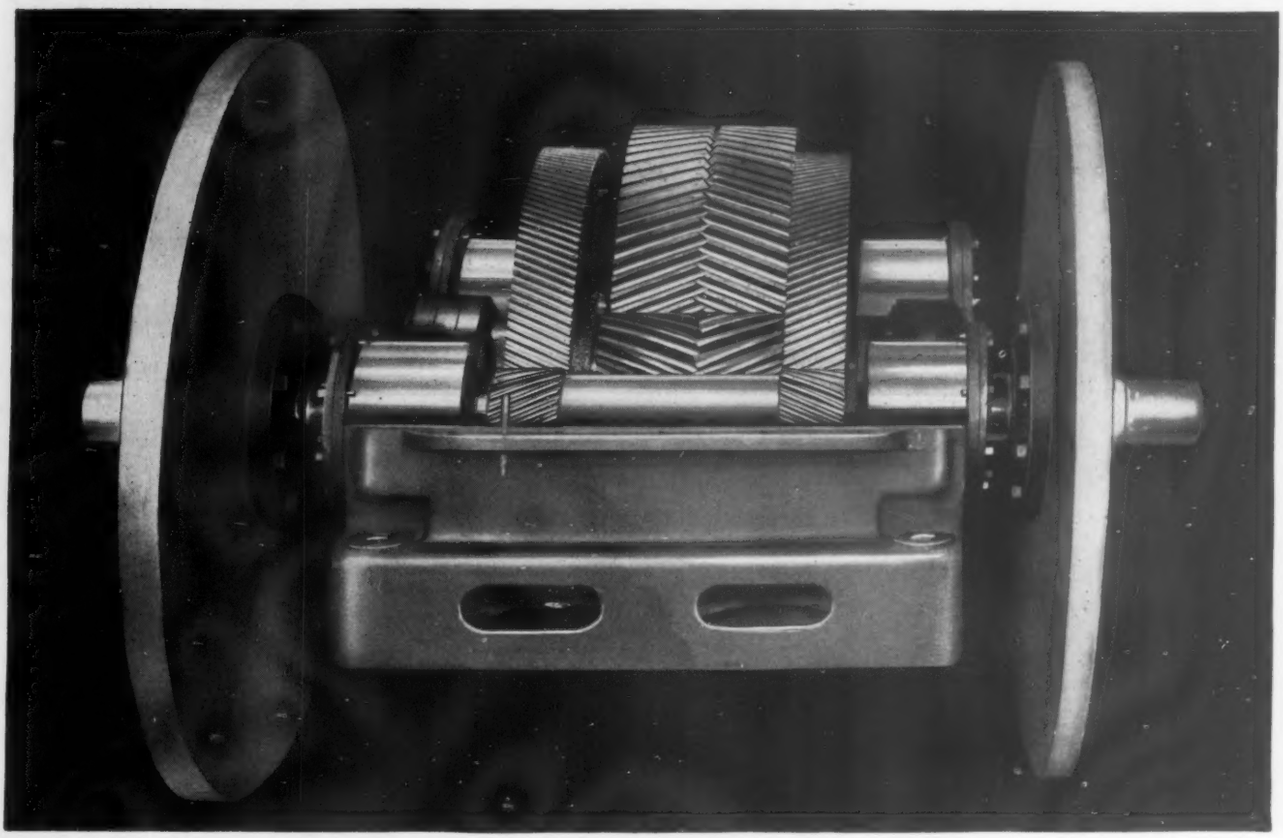
The next step in changing the name will be to refer the resolution to the constitution and by-laws committee at the annual convention in Detroit, Oct. 2-6, for preparation as an amendment to the constitution. This amendment then will be submitted to the membership by letter ballot. It is believed that the change will be ratified and that the new name will go into official use by Jan. 1, 1934.



*This machine is used by a large steel company to clean billets preparatory to chipping by impinging an abrasive against them. Centrifugal, tangential and air-dynamic forces rather than compressed air constitute the means of operation. More than 200 tons of steel has been cleaned in 10 hours*

# LEWIS GEARS

**Painstaking care, precision, accuracy, far beyond the ability of any photograph to illustrate, are elements that enter into the cutting of Lewis Gears. The results have long justified customer confidence and Lewis reputation for trouble-free machinery. We invite your correspondence regarding up-to-date Rolling Mill Machinery of all types.**



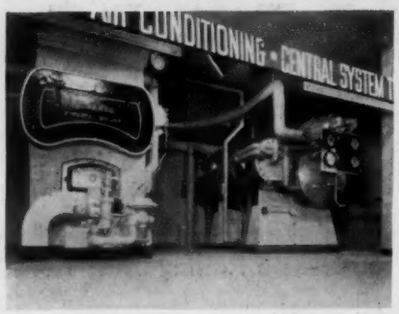
Balanced roller bearing equipped Double REDUCTION GEAR DRIVE made by Lewis with very accurately generated teeth up to and including 6000 H. P.

## LEWIS MAKES

Mill drives up to and including 6,000 HP. Shape Straightener Machines up to and including 24″I beam. Motor operated Screw-Down for Mill. High Speed Gear Sets for Continuous Rod Mills. Continuous Bar and Billet Mills. Cold Mills for Sheet and Strip. Rail Breakers. Rail Re-rolling Mills. Universal Mill Spindles. Chilled Iron and Iron Alloy Rolls for Iron, Steel, Brass, Copper, Aluminum, Zinc and Nickel. For hot sheets, tin plate and strip—for cold sheets, tin plate and strip. For merchant bars and rods. Shears—Vertical Alligator—Cropping—Plate and Squaring. Special Machinery—Testing Machines and Iron and Steel Castings.

**LEWIS FOUNDRY & MACHINE CO** LEWIS P. O. BOX 1591 PITTSBURGH, PA.

*Seen*




*at A*

# CENTURY OF PROGRESS

ONE of two buildings in the exhibit of the American Radiator & Standard Sanitary Corp., New York, is known as the "Home of Artificial Weather." In this building cooling breezes are produced in a large air conditioning plant (see illustration above) comprising equipment furnished by the corporation's several subsidiaries.

A gas-fired steam boiler made by the Kewanee Boiler Corp., Kewanee, Ill., is an important part of the installation; steam made in this boiler being used in a decalerator to produce cold water near the freezing point for use in an air conditioning system of the American Blower Corp., Detroit. The decalerator, a steam refrigeration plant marketed by the American Radiator Corp., is one of the newest air conditioning products of the corporation.

• • •

Whiting Corp., Harvey, Ill., designed and built the auto-parking tower used by the Nash Motors Co. to display various models of the latter. The tower is glass enclosed and the endless chain constantly is in motion, raising and lowering the 16 cars on exhibit. Designed for use in parking automobiles in congested areas, the lifting mechanism ordinarily is operated only when it is necessary to remove or install a car. The tower is 75 feet high and required 105 tons of steel, principally structural shapes, in its construction. This includes machinery. Units of larger capacity also may be obtained.

• • •

The largest system of radio loud speakers ever hooked up together covers the 424 acres of A Century of Progress. Distributed through the grounds are 118 loud speakers. Six hundred miles of buried wires carry the 1350-watt electric power. At every point in the Exposition grounds the music and the Fair announcements are heard and microphones can be hooked directly to the loud speaker system to pick up musical entertainments.

Five different programs may be given simultaneously in different parts of the Exposition. Loud speakers of the system that may be interfering with a musical or other event may be temporarily patched out. The three control rooms employ 7 announcers and 25 operators, the largest staff of any single radio station in the world.

The system was installed by the Electric Acoustic Corp., Fort Wayne, Ind.

• • •

Industrial gasoline locomotives, built by the Fate-Root-Heath Co., Plymouth, O., operate the miniature trains used to transport passengers from downtown Chicago along the lake front to the fair gates. Cars were built by the Koppel Industrial Car & Equipment Co., Koppel, Pa.

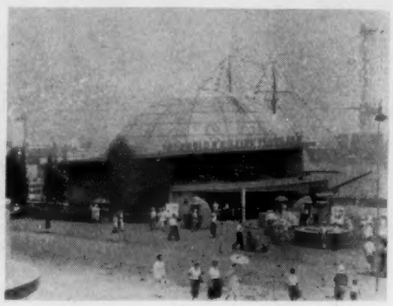
* * *

An exhibit of industrial heat applications is included in the displays of the central station industry. Pittsburgh 'Lectromelt Furnace Corp. operates an electric melting furnace of 250-pounds capacity. A rod heater is exhibited by the American Car & Foundry Co., a heat treating furnace by the Hevi-Duty Electric Co. and a hump furnace and control by the Leeds & Northrup Co. General Electric Co. shows a furnace for bright annealing in controlled atmosphere, this company also sponsoring the display of a model of a continuous enameling furnace.

• • •

A popular exhibit is the collection of prehistoric men and beasts which have been recreated to live, breathe and snarl as they did hundreds of thousands of years ago. In a huge hemispherical dome, constructed by the B-W Construction Co., Messmore and Damon, famous for their movie monsters, have built a series of life-size animated scenes entitled "The World a Million Years Ago."

Just inside the dome, an 80-foot diameter conveyor built by the Stephens-Adamson Mfg. Co., Aurora, Ill., carries foot-weary visitors around the exhibit so smoothly that the scenes appear to pass slowly in review. Some animals are 60 feet long and all are shown in what authorities conceive to have been their

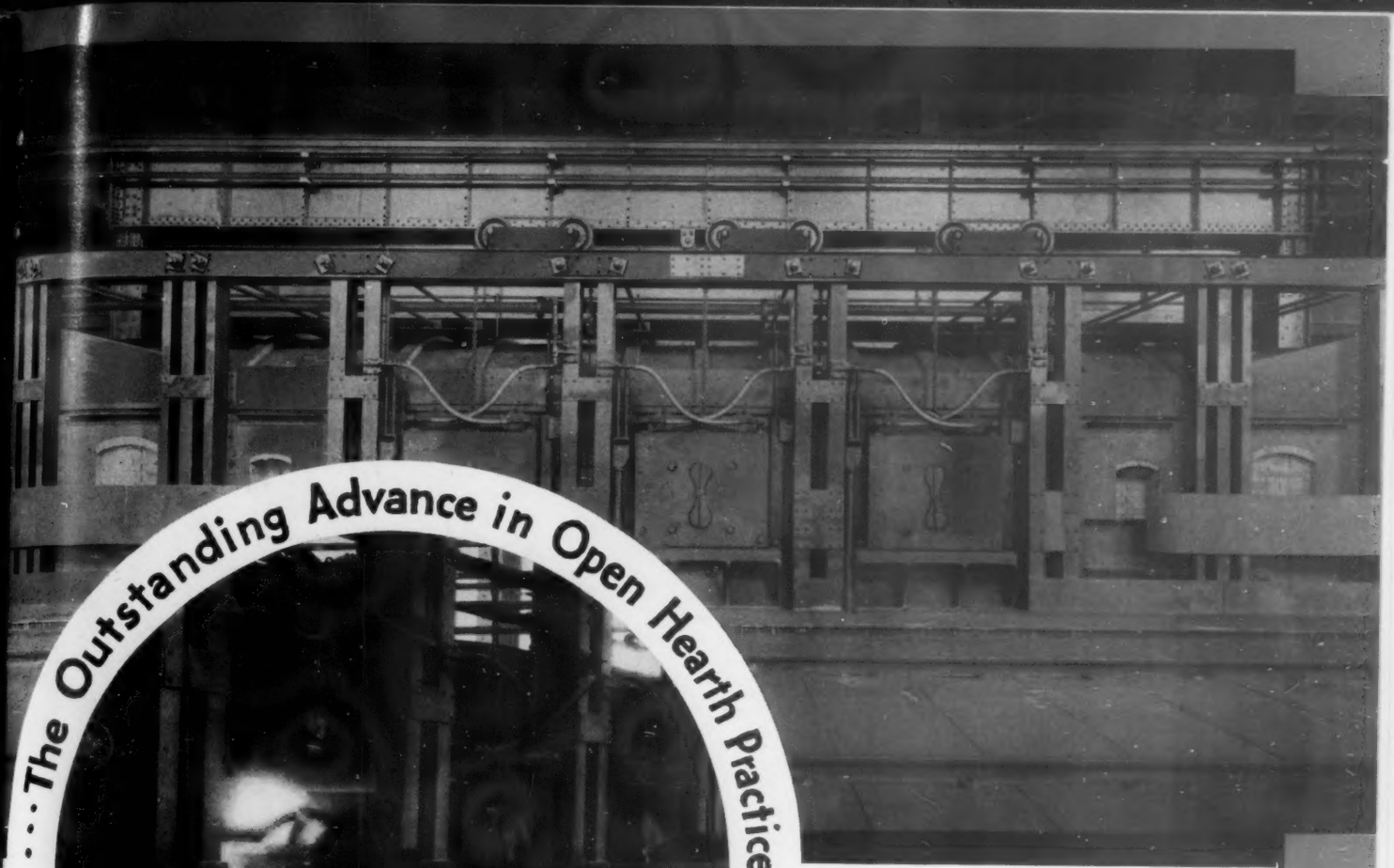


native habitat. Ingenious lighting and sound effects add to the realism.

Every figure requires from 6 to 18 different reversible motors by means of which unseen operators move the figures in a most realistic manner, even engaging them in combat. These animals have been recreated of steel, papier mache, sponge rubber, gears, flexible shafts and electric motors.

The 60-foot amphibious brontosaurus, or thunder lizard, is typical of the figures and their construction. This giant arches its long neck, cocks its head and winks a friendly eye at visitors. Its squat body houses a broad table upon which is mounted a maze of wires, springs and counterweights. To give the combination of movements, 18 reversible motors are required.

Some of the motors can be set to work at regular cycles, such as blinking the eyes, operating diaphragms to simulate breathing, and twitching the tail. Other motors actuate the jaws, neck, head, and the like. So perfect is the operator's control that the animal can reach out and take proffered straw hats, then either return them or munch them with apparent relish, wagging its tail like an appreciative dog.



...The Outstanding Advance in Open Hearth Practice

# STEVENS
## OPEN HEARTH FURNACE and Method of Operation

The Stevens Open Hearth Furnace is designed primarily to provide conditions for making better steel and to stop avoidable losses in the process.

Some of the outstanding results from the use of the Stevens Furnace and Methods are:

- **Cleaner steel showing better physical properties.**
- **A greater yield in ingots from metallic content of charge.**
- **Faster melting.**
- **Longer campaigns.**
- **Greater tonnage from each unit and for plant investment.**
- **Greatly reduced refractory and repair cost.**
- **Saving in manganese and other additions.**
- **Greater fuel saving.**

**The annual savings effected by the Stevens Open Hearth Furnace and Methods are more than sufficient to warrant the immediate replacement of existing furnaces with our equipment.**

All claims we make are verified by actual performance of our installations.

Forward looking management will improve its competitive position by replacing obsolete equipment with the best that can be obtained.

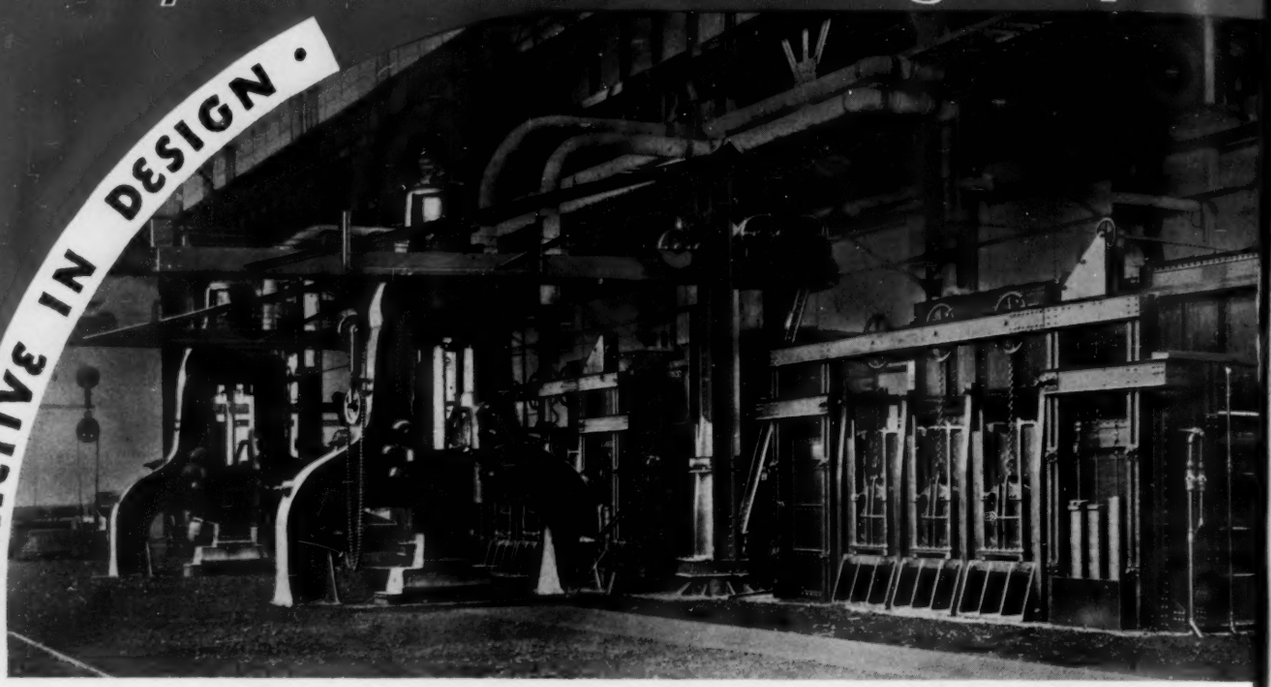
**The basic patents covering broadly the methods of constructing and operating open hearth furnaces with essential means of control to secure optimum results are owned by this corporation and it has the sole right to grant licenses under the same.**

ARTHUR L. STEVENS CORPORATION
205 WEST WACKER DRIVE, CHICAGO, ILLINOIS

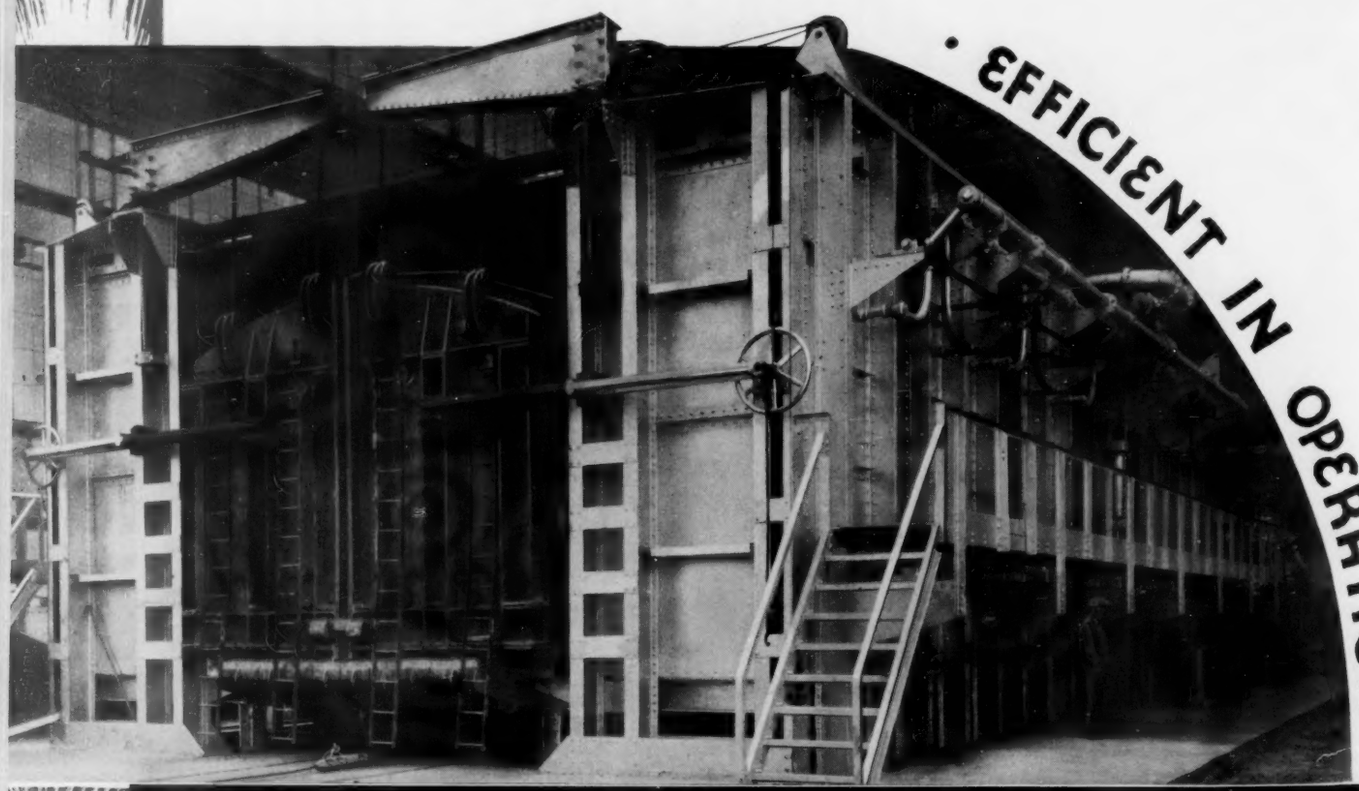
# The STEVENS Furnaces

## for steel plants, foundries and forge shops

DISTINCTIVE IN DESIGN



- The Stevens Furnaces are distinctive in design and operation.
- Rugged construction, for hard service and low repair costs; low fuel consumption, effective results are the recognized characteristics of Stevens Designed Furnaces.



EFFICIENT IN OPERATION

**ARTHUR L. STEVENS CORPORATION**

205 WEST WACKER DRIVE, CHICAGO, ILLINOIS

# *Making the Most of*

# METHODS AND MATERIALS

A METHOD of rustproofing metals now is being used in which the articles to be treated are first immersed from 1 to 5 minutes in the hot dip. This dip, the temperature of which varies from 600 to 1100 degrees Fahr., is the major part of the process. The chemicals are heated in a gas-fired pot furnace. No preliminary dipping or cleaning is said to be necessary, as the hot solution effectively removes all grease, paint, and the like. From the dip, the work is passed through a warm water rinse and a dip of slightly acid reaction to neutralize the alkaline effect of the hot dip. This completes the process if it is to be used as a paint base. If intended as a finish, an oil dip and rub improves the surface and corrosion-resisting properties. The furnace used to heat the chemicals is a standard soft metal furnace, altered to take a cast-iron pot 24 inches diameter and 24 inches deep instead of the more shallow regular pot.

S S S

Chrome-nickel stainless steels may be either cold or hot riveted. Cold riveting is recommended only for sizes less than 3/16-inch and it is further suggested that the rivet be set up in one blow, because of the work-hardening properties of the steel. Hot riveting should be done at temperatures between 1900 and 2100 degrees Fahr. and finished above 1600 degrees. If the work is to be exposed to severe corrosive conditions, it should be annealed after riveting.

S S S

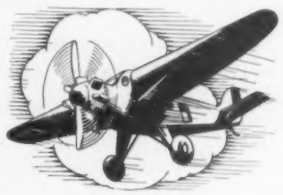
SUCCESSFUL cutting of steel of any thickness, whether ½ inch or 18 inches, depends upon the discharge of oxygen through the cutting tip orifice being sufficient to effect penetration and to maintain the reaction with the steel continuously at the required cutting speed. Pressure is necessary to push the oxygen through the hose, torch and tip at the required rate of flow. The resistance to flow varies with hose diameter, hose length, hose connector bore, oxygen cutting valve capacity and tip orifice diameter. The sum of these resistances to flow may be so great that the actual pressure and flow at the tip when attempting to use large oxygen volumes are so low that failure results.

S S S

A greatly increased life is being obtained on stamping and drawing dies, drop forge dies, die casting molds, and molds for plastic materials by the use of hard chrome plated surfaces.

S S S

Due to a breakdown in an oil refinery in Casper, Wyo., a Chicago manufacturer of valves and pipe fittings was requested by telegraph to dispatch at once some necessary fittings consisting of four 8-inch cast



steel flanged elbows. By using the air express, an expensive tieup of the plant was avoided. The shipment, weighing 827 pounds, left Chicago about midnight and reached Casper 1170 miles distant before noon the following day. The required repairs were installed before evening.

S S S

Equipment for hardening, quenching and drawing automobile axles in a West Coast plant consists of a hardening furnace and drawing furnace, both gas fired, with the water quenching tank situated immediately between them. The shafts drop from the hardening furnace into the quench and are lifted by an elevator into the drawing furnace. The hardening unit is of the walking-beam type and is divided into two heating zones, one at the entering end and one at the discharge end. Burners are installed in the side walls and feed chambers in the walking beams so as to provide heat underneath the axles. The latter was accomplished by hollowing out the beam ends and installing the gas burners in the openings. The drawing furnace is of the chain conveyor type, with six special cast chrome-iron burners installed under the chain conveyor. The furnaces are continuous and automatic both as to operation and temperature control.

S S S

A NEW product of an Ohio rubber company is an industrial paint with a rubber base. Already the paint is being used by some Detroit automobile makers. The new product substitutes the rubber base for the customary lead base, and after drying it is said that it may be bent, crumpled, doubled or rolled without cracking. It is strongly acid resisting, being unaffected by the strongest acids.

S S S

Three hours' work with an oxygen lance proved sufficient to cut out the first hinge pin of a canal lock gate. A gang of men had been attempting to remove the pin by mechanical methods for two weeks, but had found the job impossible. The pin was 9 inches in diameter and 3½ feet long. The second pin in the gate required only an hour's work after suitable provision was made for removing the slag from the burning operation.

S S S

In the field of metal cutting, chromium plated tools are being used for cutting nonferrous metals that are soft but abrasive, as aluminum, copper, nickel, brass, bronze, fiber, bakelite, and almost all nonmetallic materials. Even on iron and steel cutting tools, it has its usefulness in reducing the wear due to chips flowing from the cutting edge. In slitting saws a thin layer of chromium will reduce the abrasive wear on the side of the teeth. Burnishing broaches show an average increase of 500 per cent in life over high speed steel, and, of course, after wearing the chromium can be removed, and the broach replated and ground at a moderate cost. Thread chasing dies are being plated at a considerable saving in cost per piece.

# *Analysis of Factors Influencing*

# Rolling Pressure and Power Consumption In the Hot Rolling of Steel

BY SVEN EKELUND

Translated by BENGT BLOMQUIST

## Part I—Dynamical Conditions in Contact Area Between Rolls and Bar

(Third Article of Series)

FROM these tests the following important conclusion can be drawn. The compression of the material during rolling can be compared with parallelopipedal compression, since the deviations are without appreciable influence upon the total deformation.

In order to compute the values of the coefficient of forward slip $k$ and the angle $\psi$, the coefficient of friction $\mu$ between bar and roll must be known. If the maximum gripping angle $\alpha$ were measured, $\mu$ could be calculated from the relation: $\mu = \alpha$. The angle $\alpha$ was measured in the following manner.

### Soft Steel Bar Used

A bar of rectangular cross section, 0.39-inch thick and 8.9 inches wide, was held with the long side of the section in a vertical position; and in this position, but without force, it was brought into contact with the rolls of a 2-high mill. The upper roll was raised, and in the moment of bite its position was determined. The temperature at the edge of the bar at the contact was measured simultaneously by means of an optical pyrometer. The upper roll having previously been maneuvered into the approximate position for gripping, the experiment was carried out quickly, so that the cooling effect of the roll upon the bar was of little significance. The fact that the bar became folded between the rolls after the gripping had no appreciable influence upon the actual gripping. The rolls were made of cast iron, and the bar was soft steel (carbon, 0.15 per cent). A higher temperature than 2030 degrees Fahr. could not be obtained. The results are compiled in Table III.

The values of Table III are plotted in a diagram, Fig. 8. Since the curve is nearly a straight line, $\mu$ can be expressed as a linear function of $t$, for temperatures above 1300 degrees Fahr., as follows:

$$\mu = 1.06 - 0.000278t \quad \text{.....(11).}$$

where $t$ represents the temperature in degrees Fahr.

It is remarkable that $\mu$ reaches such a high value as 0.7 at a low temperature. The friction thus is considerably higher than for steel against steel at ordinary temperature. However, in this case it is not in reality the friction of steel against steel, but the friction of steel against scale, because the scale always occurs as a broken-up shist between rolls and bar. The composition of the rolled material also has a certain influence upon the value of $\mu$. Steel with a high content of silicon is subjected to heavy oxidation on the surface, which results in higher friction and noticeably greater spreading than in ordinary material.

### Slippage Is Tabulated

The formulas for slip and displaced volume have been applied to the tests previously described. The slippage has been computed for the regions $\varphi_1$-O and $\psi$-O, from which the slippage $\varphi_1$-$\psi$ and also the real surface slippage have been obtained. The results are compiled in Table IV.

From Table IV it will be seen that the least slip occurs in test 2, because the reduction here is the least. In test 3 the great reduction has caused a great slippage. In test 1 the slippage is greater than in test 4, in spite of the fact that the reduction is less. This depends upon the circumstance that the specific spreading in test 4 is greater than in test 1, on account of the narrower width.

The slippage $S\psi$-$_0$ is negative, because the bar has a greater velocity than the roll in the interval $\psi$-O.

**Table III**

### Coefficient of Friction Between Bar and Roll

| | Coefficient of Friction Between Bar and Roll | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $\alpha$ | 35° | 33.5° | 34.5° | 34° | 31° | 31° | 29.5° | 29° | 26.5° |
| $\mu$ | 0.70 | 0.66 | 0.69 | 0.675 | 0.60 | 0.60 | 0.565 | 0.555 | 0.50 |
| Degree Fahr. | 1328 | 1390 | 1454 | 1544 | 1616 | 1724 | 1796 | 1904 | 2030 |

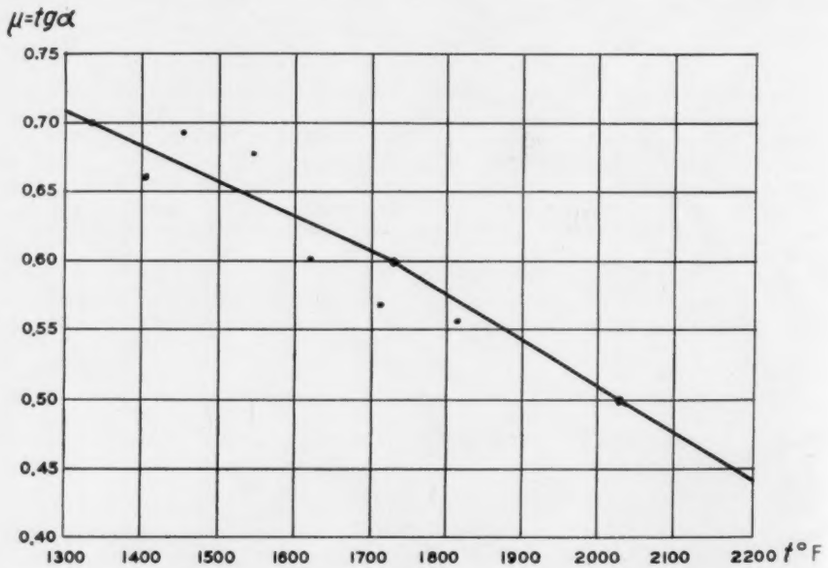



*Fig. 8—Influence of temperature on the coefficient of friction*

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Table IV

## Surface Slippage of Bar During Reduction

| Test No. | $S_0 - \phi_1$ | $S\psi - _0$ | $S\phi_1 - \psi$ | $S_t$ | $\frac{S_t}{R \cdot \phi_1} \cdot 100\%$ | $\frac{S_0 - \phi_1}{R \cdot \phi_1} \cdot 100\%$ | Reduction % | k |
|---|---|---|---|---|---|---|---|---|
| 1..... | 0.186 | —0.057 | 0.243 | 0.300 | 6.9 | 4.3 | 30.4 | 1.05 |
| 2..... | 0.0188 | —0.0165 | 0.353 | 0.052 | 1.4 | 0.5 | 10.7 | 1.01 |
| 3..... | 0.298 | —0.110 | 0.408 | 0.518 | 9.8 | 5.6 | 46.6 | 1.09 |
| 4..... | 0.118 | —0.049 | 0.167 | 0.216 | 4.6 | 2.5 | 36.4 | 1.06 |
| 5..... | 0.073 | —0.047 | 0.120 | 0.167 | 4.2 | 1.8 | 26.3 | 1.04 |

The reversed conditions prevail between $\phi_1$ and $\psi$, and make the slippage in that position positive.

The real slippage in the contact surface can be determined in the above cases, by correcting the computed figures by adding or subtracting half of the amount of "curvature" as measured at the center of each test bar. In test 1, for example:

$$S_r = S\phi_1 - \psi - \tfrac{1}{2}(5 - 2) - S\psi - _0 - \tfrac{1}{2}(5 - 3.5) = 0.211 \text{ inches}$$

(The figures in parentheses represent the number of millimeters, measured on the test bars). Again, in test 2:

$$S_r = S_t + \tfrac{1}{2}(2 - 1.5) = 0.062 \text{ inches}$$

and in test 3:

$$S_r = S\phi_1 - \psi - \tfrac{1}{2}(7 - 2.5) - S\psi - _0 - \tfrac{1}{2}(7 - 5\,5) = 0.400 \text{ inches}$$

The figures in Table V give an indication as to the magnitude of the slippage which causes the abrasion of the rolls. It should be noted that no consideration has been given to the slippage which is due to the spreading of the rolled material. The resulting slippage, however, is only slightly higher than that calculated above in the direction of rolling. In tests 1, 2 and 5, the reductions are in accordance with equations (6) and (10), and between $\phi_1$ and O, are compiled in Table VI.

Thus, the real displaced volume $V_v$ in every instance is less than the ideal value $V_i$. The reason for this is that the slippage $S\phi_1 - \psi$ is greater than the numerical value of the slippage $S_{\psi - 0}$ and also that the main reduction takes place in the interval $\phi_1 - \psi$. The difference $V_i - V_v$, expressed in per cent of $V_i$, is equivalent to $S_0 - \phi_1$ in per cent of $R\phi_1$. The difference $V_i - V_v$ is smallest in test 2, where the linear reduction is smallest in relation to the thickness of the bar. Of the values $Vl_1$, $Vl_2$ and $Vl_n$, computed according to the formulas given previously, $Vl_n$ conforms most closely to $V_v$; with $Vl_2$ next, while $Vl_1$ is more approximate, especially for great reduction and spreading.

The reason why $Vl_n$ does not give the correct value is that the displaced volume depends upon the manner in which the transition from the initial to the final state takes place. This can be shown by an example.

In Fig. 9, $ABCD$ is a rectangular parallelopiped with the dimensions $b_1$, $h_1$ and $l$, which is deformed into the final shape $A_1B_1C_1D_1$ having the dimensions $b_2$, $h_2$ and $l$.

The deformation is assumed to take place in two steps: first, the side $AB$ is displaced into position $AB_1$ and then $AB_1$ moves into the position $A_1B_1$. It is assumed that $AB$ and $AB_1$ are plane surfaces during the deformation. The displaced volume then is $V = (ABB_1 + AA_1B_1) \cdot 1 = (BB_1C_1C + AA_1D_1D) \cdot 1$. The calculation of the displaced volume is as follows:

$$V = \int_0^{x_1} y'dx' + \int_0^{x_2} y''dx''$$

$$x_1 = \frac{2b_1h_1}{h_1 + h_2} - b_1\,;\; x' = \frac{2b_1h_1}{h_1 + y'} - b_1\,;\; y' = \frac{2b_1h_1}{b_1 = x'} - h_1$$

$$\int_0^{x_1} y'dx' = 2b_1h_1 \log_e \frac{2h_1}{h_1 + h_2} - \frac{b_1h_1(h_1 - h_2)}{h_1 + h_2}$$

$$x_2 = \frac{b_1h_1}{h_2} - \frac{2b_1h_1}{h_1 + h_2}\,;\; y'' = \frac{2b_1h_1}{x'' + \frac{2b_1h_1}{h_1 + h_2}}$$

$$\int_0^{x_2} y''dx'' = 2b_1h_1 \log_e \frac{h_1 + h_2}{2h_2} - \frac{b_1h_1(h_1 - h_2)}{h_1 + h_2}$$

$$V - 2b_1h_1 \left( \log_e \frac{h_1}{h_2} - \frac{h_1 - h_2}{h_1 + h_2} \right)$$

This formula is of the same type as equation (7), which depends upon the fact that the deformation in rolling takes place in about the same manner as has been assumed.

On the other hand, if the deforma-

Table V

## Relation of Slippage to Roll Abrasion

| Test No. | $S_r$ | $\frac{S_r}{R \cdot \phi_1} \cdot 100\%$ | $\frac{S_r}{\pi \cdot D} \cdot 100\%$ | Reduction, per cent |
|---|---|---|---|---|
| 1..... | 0.211 | 4.90 | 0.24 | 30.4 |
| 2..... | 0.062 | 1.65 | 0.07 | 10.7 |
| 3..... | 0.400 | 7.60 | 0.45 | 46.6 |
| 4..... | 0.128 | 2.70 | 0.14 | 36.4 |
| 5..... | 0.100 | 2.50 | 0.11 | 26.3 |

about the same as those used in practical rolling. Accordingly, it can be concluded that for ordinary cases the slippage should range from 1.5 to 5 per cent of the length of contact, or from 0.05 to 0.25 per cent of the total rolled length. The abrasion of the rolls should be proportional to the latter figures for the rolling of ordinary bar sections (square, round, hexagonal, etc.); but in the rolling of I and H-beams, channels, and other special sections, more variable conditions prevail with regard to slippage.

The displaced volumes, as calculated

Table VI

## Displaced Volumes Calculated in Accordance with Formulas Nos. 6 and 10

| Test No. | $Vi$ | $Vv$ | $\frac{Vi - Vv}{Vi} \cdot 100\%$ | $Ve_1$ | $Ve_2$ | $Ve_n$ | Reduction, per cent |
|---|---|---|---|---|---|---|---|
| 1..... | 51.9 | 45.1 | 13 | 36.0 | 48.2 | 47.0 | 30.4 |
| 2..... | 16.1 | 15.6 | 3 | 10.8 | 11.8 | 15.7 | 10.7 |
| 3..... | 47.5 | 38.4 | 19.5 | 23.8 | 36.0 | 42.7 | 46.6 |
| 4..... | 32.3 | 28.0 | 13.2 | 17.7 | 23.8 | 30.5 | 36.4 |
| 5..... | 19.5 | 17.7 | 9.3 | 11.6 | 14.0 | 18.9 | 26.3 |

tion takes place so that the side $AB$ remains parallel to $A_1B_1$ during the translation, the displaced volume is:

$$Vl_2 = b_1 h_1 \log_e \frac{h_1}{h_2}$$

The difference between the two formulas is in principle, although the numerical difference may be small. For example:

$b_1 = h_1 = 1$, $b_2 = 2$, $h_2 = \frac{1}{2}$ } $V = 2(\log_e 2 - 1/3) = 0.72$

$Vl_2 = 1 \cdot \log_e 2 = 0.69$

Summarizing the results obtained thus far, we can draw the important conclusion that the bar in the area of contact between the rolls is subjected solely to pressure. The conditions of slipping are such that the rolls cannot exert a pull upon the bar. This is valid for all kinds of simple rolling. The rolling of intricate shapes and certain kinds of tube rolling may need to be excepted from this rule. Inasmuch as the forces of friction in the surface of contact between roll and bar are directed opposite each other, they will tend to hinder the deformation of the bar section, and the deformation cannot be carried out unless a pressure is applied which is greater than the strength of the rolled material. However, although the material thus is subjected to an external pressure, the internal distribution of forces may be such that certain parts will exert a pull upon other parts. For rectangular bars, the lateral edges undoubtedly will be subjected to a pull, because of the fact that the free surfaces tend to spread but are hindered from doing so by their connection with the other parts of the bar.

The difference in roll diameter between upper and lower rolls, causing over- or under-draft, is usually not of such an order of magnitude as to have any considerable influence upon the slippage.

*(To be Continued)*

## Producing Sandpapers by Electrocoating Process

Electrocoated abrasives or sandpapers, made by an electrostatic method which is said to feature several distinct advances over older processes, were placed on the market Sept. 1 by several leading manufacturers, including Armour Sand Paper Works, Chicago; Behr-Manning Corp., Troy, N. Y.; Carborundum Co., Niagara Falls, N. Y.; and Minnesota Mining & Mfg. Co., St. Paul.

The new method orients the abrasive particles into an upright position with points out and with even spacing between grains before they are set in the adhesive. The electric force then shoots the grains swiftly against the glue.

By this process, the best cutting edge of each abrasive particle becomes effective and the whole cutting surface has the maximum possible efficiency. Because of the even spacing, the product cuts smoothly. The net result, it is stated, is a sandpaper which cuts faster, requires less effort, has a longer life, will withstand more severe service, and produces uniform high-quality work.

The makers have tested the product on a wide variety of jobs and find that its use increases efficiency of sanding from 20 to 60 per cent, depending upon the material being surfaced and the method of operation employed. On most jobs, it is said that the improvement averages 30 to 40 per cent.

The new line of paper will be available in sufficient variety to meet all the needs of machine and hand operations in which coated abrasives are applicable.

## Coatings Protect Molds in Die Casting Practice

St. John X-Ray Service Corp., 507 Fifth avenue, New York, is placing on the market a die coating for use in the manufacture of aluminum and brass die castings. This coating protects the die and gives the casting a smooth surface and good finish.

The company has for some time supplied a coating for zinc base die castings, the product being used widely in this country and abroad. Development of a similar material for aluminum and brass was a more difficult problem and a solution was found after extensive testing.

In addition to these die castings, the company has a complete line of mold dressings for use on permanent and semipermanent molds in the manufacture of any nonferrous alloy castings. All coatings are claimed to work equally well on ingot molds, crucibles, pots, and even as protection on refractories in furnaces.

## Rustproofing Accomplished Without Use of Cadmium

A new method of rustproofing, developed by the Northern Distributing Co., 719 Vance building, Seattle, and involving the electrodeposition of alloy metal, was announced in the Aug. 28 issue of STEEL, page 41. Applicable to all ferrous metals in cast or rolled form, the treatment consists in submerging the parts in a bath at room temperature for 7 to 10 minutes, using any standard electroplating equipment.

In describing the process, it was stated incorrectly that "the deposited alloy is made up of a number of nonferrous metals, including cadmium." This statement should have read "the deposit contains nonferrous alloys other than cadmium."

## Firebrick Data Presented

McLeod & Henry Co., Troy, N. Y., manufacturer of furnace refractories, recently published a 16-page bulletin describing a new firebrick for oil-fired furnaces; silicon carbide brick for boiler, stoker and industrial furnace linings; high-temperature cements; data on furnace linings and arches, and the like. The booklet contains information of value to purchasing agents, chief engineers and plant managers on the selection and care of firebrick furnace linings. Copies are available to any reader of STEEL upon request to the company.

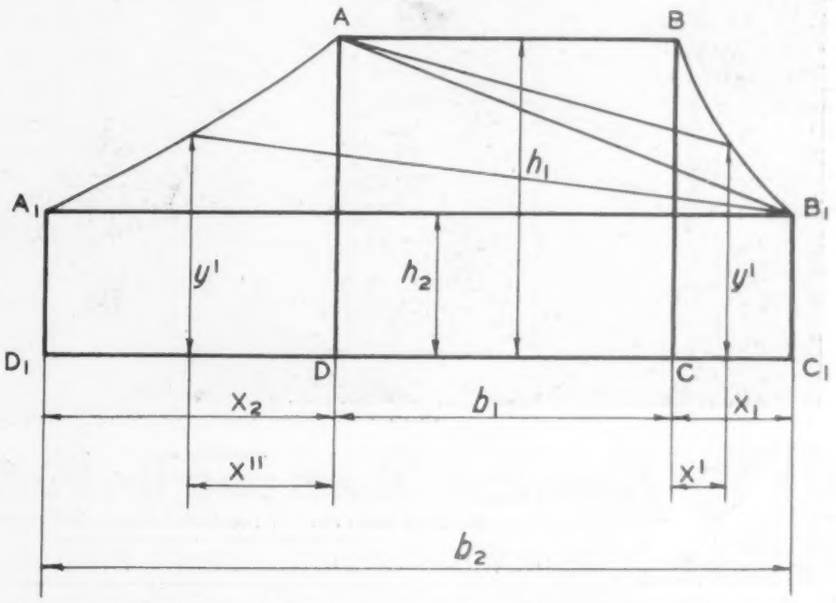
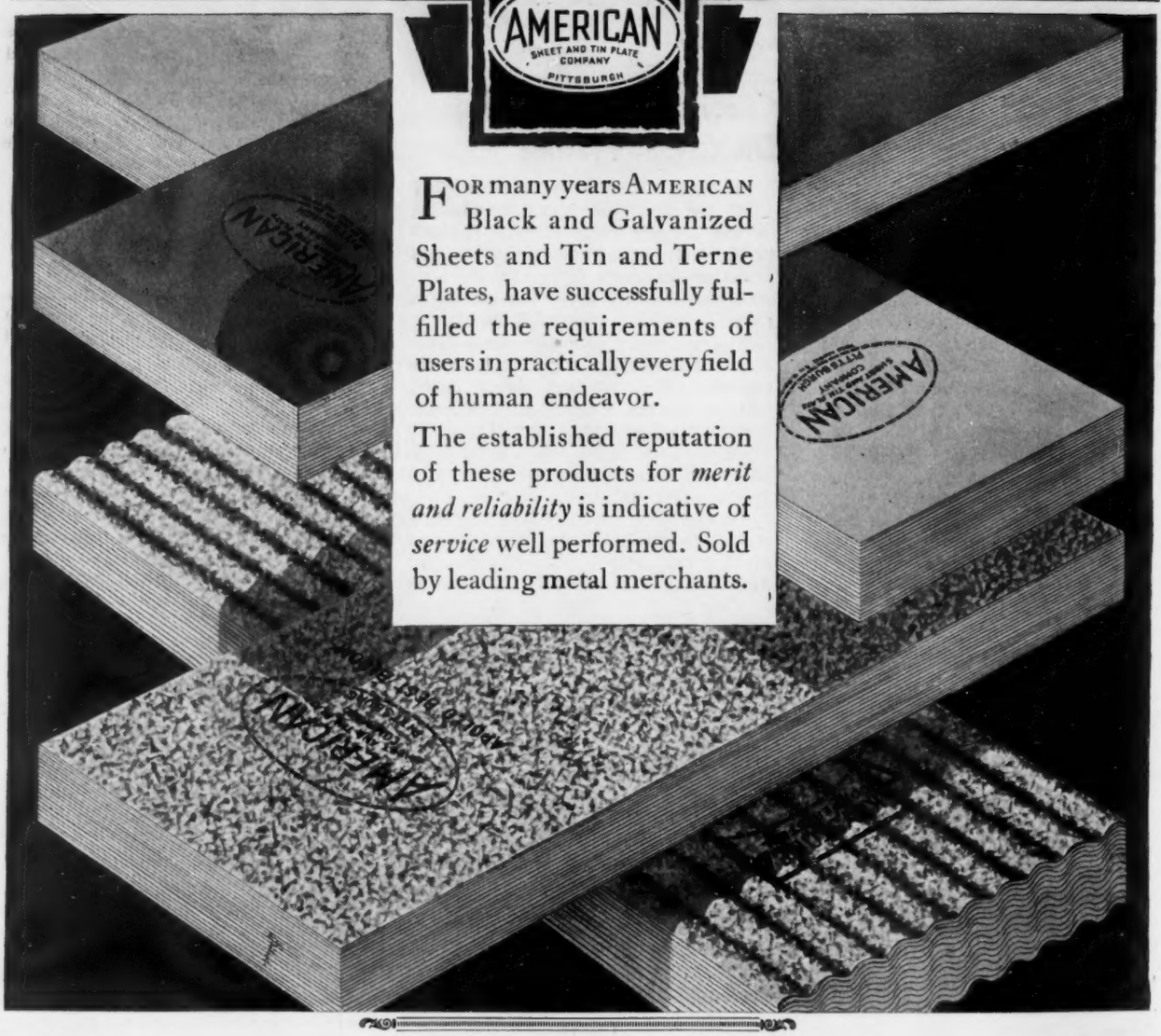



*Fig. 9—Rectangular parallelopiped with deformation assumed to have taken place in two steps*

# AMERICAN STEEL SHEETS

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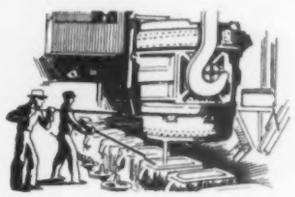
# PROGRESS IN STEELMAKING

PEELS on open-hearth furnace charging machines become badly fire cracked after a few month's subjection to the action of the flame traveling over the hearth of the furnace, and have to be replaced. One open-hearth shop in Ohio, instead of scrapping the entire peel, cuts off 3 feet of the outer or charging box end where the fire cracks are in evidence, and welds a new 3-foot repair section in place. Saving the flange end of the charging peel by this arrangement has afforded a reduction in the repair and maintenance costs of approximately 50 per cent.

♦ ♦ ♦

Slippage of the pointing device on nail machines frequently causes a slight variation in the nail point, thus necessitating the resetting of the machine. With a recently devised gage, developed by an employe of a midwestern nail factory, a quick check is had of the nail points and heads to assist in maintaining the proper setting of the machine. The gage is made of steel and is drilled with holes for measuring nails ranging from ⅛ to ¼-inch diameter.

CHEAP steel or cast iron now is used by an English concern as a basis for the production of heat, rust and acid-resisting materials. The procedure followed, known as the Follsain process, consists in packing ferrous material with a mixture of aluminum, chrome oxide and a catalyst in a metallic container and submitting the whole to a temperature of about 1830 degrees Fahr. for 3 or 4 hours. An aluminol-thermic reaction occurs which results in communicating to the objects treated a fairly lightly adhering skin of alumina, beneath which is another skin of metallic aluminum and finally the metallic object cemented with chromium metal.



CHEMICAL qualities in ingot molds desired by a user in the Pittsburgh district include approximately 1.50 per cent manganese and low phosphorus and sulphur. The high percentage of manganese appears conducive to mold life longevity. Molds of this analysis are good for a campaign of 200 heats each; some still are in service after a run of 300 heats.

♦ ♦ ♦

Hot rolled strip manufactured at a mill in the Great Lakes district is sheared into multiple lengths by a flying shear designed with 950 gear changes.

♦ ♦ ♦

Facing, designed to provide a leak-proof construction to earthwork, rock dams and reservoirs, is one of the recent applications of steel. The facing comprises special steel channels placed flange to flange, with the exterior edges of the flanges of adjacent channels welded together. Each channel is rolled with a slight outward flare of the flanges to afford a clearance between the bases of the flanges of adjacent channels. This provides an expansion joint for each channel and is said to overcome lateral expansion. The new facing is claimed to be ten times stronger and resistant to bending than steel plate construction. The channels can be welded together in the shop into battens approximately 8 feet wide and 20 or more feet long, using automatic arc welding equipment. These battens then can be shipped to the site and welded in place on the face of the dam.

♦ ♦ ♦

On a carbureted water gas plant in the East, a waste-heat boiler is operated on the blast gas which heats the machine. This blast gas is received at the boiler at a temperature range between 800 and 1400 degrees Fahr. In view of the fact that the water gas plant is operated in cycles, the blast gas is used only part of the cycle. A Dutch oven automatically is turned on and off when the blast gas is turned off and on. This oven burns fuel tar obtained from the gas made in the plant and supplies heat in the intervals that the gas blast is off. By this hookup the waste-heat boiler is kept in continuous operation.

GRAPHITE mold wash containing a high-grade graphite mixed with a clay binder and water, and sprayed on the interior walls of ingot molds with a high-pressure gun serves as a lubricant and prevents cracks, according to a Pittsburgh district steelmaker. The application of a mold wash also is believed to increase the campaign of an ingot mold materially.

# NEW BOOKS WORTH READING

SCIENCE ◆ ECONOMICS ◆ BUSINESS

## Encyclopedia of Standards Issued by Government

*Standards and Specifications for Metals and Metal Products*, 1933, cloth, 1359 pages 7⅝ x 10⅝ inches; published by bureau of standards, Washington; supplied by STEEL, Cleveland, for $3, plus 15 cents for postage; in Europe by Penton Publishing Co. Ltd., Caxton House, Westminster, London.

An encyclopedia of specifications, this volume represents an attempt on the part of the department of commerce to collect and publish the substance of the standards and specifications relating to ores, metals and manufactures formulated by the national technical societies, trade associations having national recognition and other organizations which speak for industry or with authority of the federal government.

The chapters cover iron and steel and its manufactures; ferroalloying ores, metals and metal manufactures; aluminum, antimony, bismuth, cadmium, and cobalt; copper, brass and bronze; lead, mercury and nickel; precious metals, metal jewelry and plated ware; clocks, watches and dials; tin and zinc; miscellaneous ores, metals, alloys and metal manufactures.

◆

## Iron, Silicon Alloys Codified Book Gathers Available Data

*Alloys of Iron and Silicon*, by Earl S. Greiner, J. S. Marsh and Bradley Stoughton, cloth, 457 pages, 6 x 9 inches, 124 tables, 124 illustrations; published by McGraw-Hill Book Co. Inc.; supplied by STEEL, Cleveland, at introductory price, $4, plus 15 cents for postage (regular price will be $5); in Europe by Penton Publishing Co. Ltd., Caxton House, Westminster, London.

This book is the second monograph in a series by the Alloys of Iron Research, the former being on alloys of iron and molybdenum. They are the result of effort by the Engineering Foundation.

The volume is a comprehensive review and critical appraisal of the known facts on alloys of iron and silicon and on the effect of silicon on steel and special cast iron. The engineer, metallurgist, steelworker, foundryman and scientist will find here at his disposal all the available information on alloys of iron and silicon gathered from scattered sources in volumes of journals and textbooks in many languages.

In praparation of the volume about 1200 articles were examined, nearly 1000 being found sufficiently important to be studied in detail and abstracted. Reference is made in the text to 478.

Compilers had the assistance of a number of experts during preparation of the text, which aided greatly in eliminating errors and omissions and also brought in various information not then published but available through their contact with the subject.

The text is supplemented by a bibliography, a name index and a subject index.

◆

## S. A. E. Handbook for 1933 Brings Specifications to Date

*S. A. E. Handbook*, 1933, fabrikoid, 733 pages, 5¼ x 8¼ inches; published by Society of Automotive Engineers; supplied by STEEL, Cleveland, for $5, plus 15 cents for postage; in Europe by Penton Publishing Co. Ltd., Caxton House, Westminster, London.

All current standards and recommended practices adopted by the society are included in this volume. New and revised specifications issued during a current year are incorporated in the next issue. The volume follows the plan of previous issues, bringing the society's standards to date, with additions adopted during the year.

A new group classifications has been adopted so that specifications will be grouped according to type rather than to the particular kind of automotive device to which they may apply, as in many cases specifications apply to more than one kind. The general index will guide to finding the specification under the new classification.

◆

## Mineral Statistics Yearbook Supplants Former Issues

*Minerals Yearbook*, 1932-33, cloth 819 pages, 90 illustrations; published by bureau of mines, Washington; supplied by STEEL, Cleveland, for $1.25, plus 15 cents for postage; in Europe by Penton Publishing Co. Ltd., Caxton House, Westminster, London.

For more than 50 years accurate official statistics covering commercial minerals have been released annually in *Mineral Resources of the United States*. For 1932-33 a change has been made in manner of publication, the volume being named *Minerals Yearbook*. It has been possible to effect earlier release of annual data on minerals, due to cumulative advances in the technique of statistical collection since the World war. The new volume will take the place of several former publications, including *Mineral Resources of the United States*.

The public will profit by the release of the material soon after the close of the year with which it deals and in the concise presentation in a single volume of all essential data, arranged for ready reference.

Contributions to the 61 economic and statistical surveys were made by 59 authors on the bureau staff. In addition to chapters on the principal minerals the volume contains a discussion of the status of the mineral industry, recent developments in coal utilization, safety in mining and other subjects.

◆

## Patternmaking Brought Down To Date by Experts

*Patternmaking*, by James Ritchey; revised by Walter W. Monroe, Charles William Beese and Philip Ray Hall; cloth; 223 pages, 5½ x 8½ inches; published by the American Technical society; supplied by STEEL, Cleveland, for $1.75, plus 15 cents for postage; in Europe by Penton Publishing Co. Ltd., Caxton House, Westminster, London.

The original author and the men who have had a part in revising this treatise have been identified with the woodworking or patternmaking departments of various engineering and technical schools. P. R. Hall, the final revisor, is instructor of foundry practice, Pennsylvania State college, State College, Pa.

The book is divided into three parts. The first is devoted to the practical requirements necessary in pattern construction; the second discusses construction of simple types of patterns, both one piece and split; the third discusses complicated pattern construction. Information also is given on green sand coring, mounting, match plates, equipment for machine use, pattern numbers, and special equipment for stripping plate machines. The work is well illustrated with reproductions of 359 drawings and photographs.

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# SCANNING THE FIELD OF TECHNOLOGY

A Digest of Important Developments Pertaining to the Production, Processing, Application and Performance of Steel

### Electric Heating

*Booklet published by the Cleveland Electric Illuminating Co., Cleveland, 34 pp., profusely illustrated.*

The general subject of electric heating in controlled atmospheres is covered in this booklet, presenting technical discussions prepared by seven authorities on the subject. Concurrent development of low-cost artificial atmospheres, and electric furnaces in which these gases can be employed efficiently, economically and profitably, is an important achievement of recent years. This booklet is commended by the publisher to the attention of executives, engineers, metallurgists and chemists as a comprehensive survey of the subject. Titles of the seven discussions are: The electric furnace with controlled atmosphere; bright annealing of strip steel; tool furnaces with controlled atmosphere; temperature distribution in electric furnaces; electric furnace brazing in reducing atmospheres; carburizing in carbon-rich atmosphere; and high-temperature furnaces.

—STEEL, 9-4-33

### Magnetic Testing

*By Hamilton Foley, in preprint of paper presented before meeting of Society of Automotive Engineers in Chicago, Aug. 28-Sept. 4, 16 pp., 6 ills.*

This paper describes the manufacture and testing of hollow steel airplane propellers. Only electric furnace chrome-vanadium steel is used and the two halves of the blade are pressed to shape, held closely together and atomic hydrogen welded. Following stress relieving, the blades pass through the finishing operations. Magnetic testing by the magnaflux method consists in making the blade a part of a magnetic circuit and sprinkling iron powder on the surface. Piling up of the powder indicates a discontinuity in the steel. Both longitudinal and transverse magnetism are applied and permanent records made on blueprint paper. The magnetic equipment used and its operation are described.

—STEEL, 9-4-33

### Cold Heading

*By H. W. Graham, in Metal Progress, August, p. 22, 5 pp., 3 ills.*

Requirements of steel wire for cold heading are discussed. Steelmaking technique is described and the general effects of analysis are considered. Hardening and embrittlement occurring under plastic flow in cold working are important factors to be recognized. For best cold heading, steel must be soft and plastic; for best machining, soft and brittle. In this situation the metallurgist is always striving to obtain the ultimate in both of the two opposite directions by working in a middle ground which is actually nonexistent.

—STEEL, 9-4-33

### Microscopy

*Translated from a German article by Hans Esser and Heinz Cornelius, in Metals and Alloys, August, p. 119, 4 pp., 19 ills.*

Description of a method for observing through the microscope changes (allotropic transformations, solubility and decomposition phenomena) which take place in metals and alloys on change of temperature. Apparatus which permits metallographic examination of sections up to temperatures of about 1100 degrees Cent. is described. Results of various observed transformations in iron and steel are discussed.

—STEEL, 9-4-33

### Steel from Ore

*The Iron Age, Aug. 10, p. 18, 2 pp., 2 ills., 1 table.*

A British steel company is making rustless steels from California ore. The process is the Wild direct process of making steel from chromite ore. The company is operating a 10-ton hydraulically controlled electric furnace with a capacity for turning out at least five charges in 24 hours at a current consumption of not more than 650 kilowatt hours per ton of steel. Ingots ranging from 1100 to 3500 pounds in weight are being cast.

—STEEL, 9-4-33

### Profilograph

*By E. J. Abbott and F. A. Firestone, in Automotive Industries, Aug. 19, p. 204, 3½ pp., 2 ills., 2 profilograph records.*

Description is given of a machine, known as the profilograph, for measuring roughness of finely finished and ground surfaces. Peaks and valleys in a surface of the order of 0.0001 inch are reproduced in detail by the machine; irregularities as small as 0.000001 inch in smooth finishes are detected.

—STEEL, 9-4-33

### Spectrum Analysis

*By Welton J. Crook, in Transactions of the American Society for Steel Treating, August, p. 708, 25 pp., 11 ills.*

This paper describes the construction and use of a 21-foot focal length grating spectrograph as applied to metallurgical analysis. A new method of reading is outlined, in which the spectrum film is placed in an enlarger and projected onto visual charts, thus avoiding necessity for using the micro-comparator.

—STEEL, 9-4-33

### Alloys

*Translation of a German article by G. K. Herzog, in Machine Design, August, p. 35, 3 pp., 4 ills., 3 charts, 2 tables.*

Maximum service with minimum wear is the aim of every designer of machinery, an aim that is governed principally by the proper selection of materials. This translation brings out various features regarding the behavior of materials in service and how alloying elements effect performance.

—STEEL, 9-4-33

### Phosphorus

*By John W. Bolton, in The Foundry, August, p. 16, 3½ pp., 5 charts.*

The first of two articles seeking to bring up to date the subject of phosphorus in cast iron, and to clarify the knowledge of the precise mechanism involved in the change from ternary iron-phosphorus-carbon forms to binary iron-phosphorus forms most commonly found in gray iron.

—STEEL, 9-4-33

### Coated Abrasives

*By Donald Wandrei, in Abrasive Industry, September, p. 16, 2 pp., 2 ills.*

Outline of a new process recently developed and applied to the manufacture of coated abrasives with a resultant 30 to 40 per cent increase in their working efficiency. The process involves the electrical charging of the abrasive grains before they are applied to the paper or cloth backing.

—STEEL, 9-4-33

### Enamel Solubility

*The Enamelist, August, p. 14, 2 pp., 1 chart, 1 table.*

Data are presented relating to a test performed on white cover coat enamels, in an effort to determine their rate of solution in distilled water.

—STEEL, 9-4-33

# NEW EQUIPMENT

## PRODUCTION FABRICATION TREATMENT FINISHING

### New Packing Meets High Pressure Requirements

Yarnall-Waring Co., Chestnut Hill, Philadelphia, recently developed a new form of laminated packing for its blow-off valves. Construction consists of several stainless steel rings with long fiber asbestos packing between them. At the time of assembly the mass is compressed and heat treated, so that the finished ring is a complete unit suitable for high temperatures and pressures. Tests disclose that the construction practically eliminates blow-down leakage even at steam pressures as high as 2100 pounds.

◆

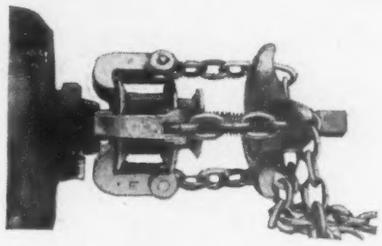
### Fan Embodied in New Motors For Circulating Air

Emerson Electric Mfg. Co., St. Louis, recently announced a new line of 3 horsepower motors, operating at 1725 revolutions per minute and furnished in a single-phase, repulsion start induction type, the polyphase squirrel-cage type, and direct-current, compound wound. Frames have ventilating openings and a fan on the armature provides a constant circulation of air through the motor. Openings are so arranged that protection is afforded from dirt or water falling from above.

◆

### Gear and Wheel Puller Has Universal Application

Armstrong-Bray & Co., 308 Sheldon street, Chicago, has placed on the market a new puller for wheels, pulleys, gears, bushings and pinions. Consisting of a heavy bracket with large pulling screw and three chains of most any length, the unit, shown herewith, will handle work at any distance from the end of the shaft. These chains are double ended, with standard chain



*Steelgrip gear, wheel puller marketed by Armstrong-Bray & Co.*

hooks on one end for gripping around spoked wheels or large gears, and special hooks that take a close grip for bushings, small gears or motor pulleys. Two sizes with capacities of 12,000 to 36,000 pounds are available.

◆

### Wire Straightening, Cutting Unit Is High Speed Type

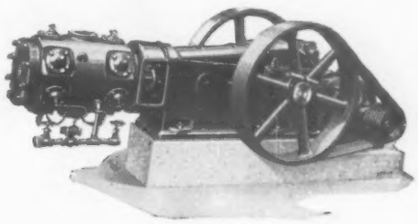
F. B. Shuster Co., New Haven, Conn., recently added a new high-speed unit to its line of automatic wire straightening and cutting machines. Almost continuous movement of the wire is brought about by the use of a specially designed cutoff cam, and clutch which is practically instantaneous in operation. High speed is possible in the cutoff because the cover which closes the guide bar is operated independently of the cutoff lever, and the guide bar itself is fixed permanently to the uprights. Hand wheel adjustment for the feed rolls is located in an opening in the bed of the machine, shown below. Lower roll boxes are released at the time of cutting off. Motor is mounted underneath the machine. Breaking rolls may be supplied if desired, although the machine is shown without any rear rolls.

◆

### Single-Stage Compressor Is Heavy-Duty Unit

Ingersoll-Rand Co., 11 Broadway, New York, has developed a single-stage, belt-driven compressor designed for heavy-duty service. The unit, shown herewith, has one horizontal, double-acting cylinder, operates at moderate speeds, and is available in sizes from 10 to 125 horsepower, for discharge pressures from 5 to 150 pounds.

Low air speeds and small pressure



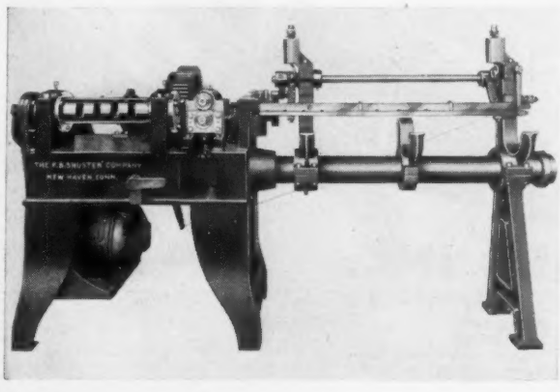
*Ingersoll-Rand belt-driven compressor designated class ES*

losses obtained by liberal design of air passages and valves insure maximum economy. These features and effective water jacketing also provide low air temperatures, simplifying lubrication problems and lengthening service life of valves, cylinders and piston rings.

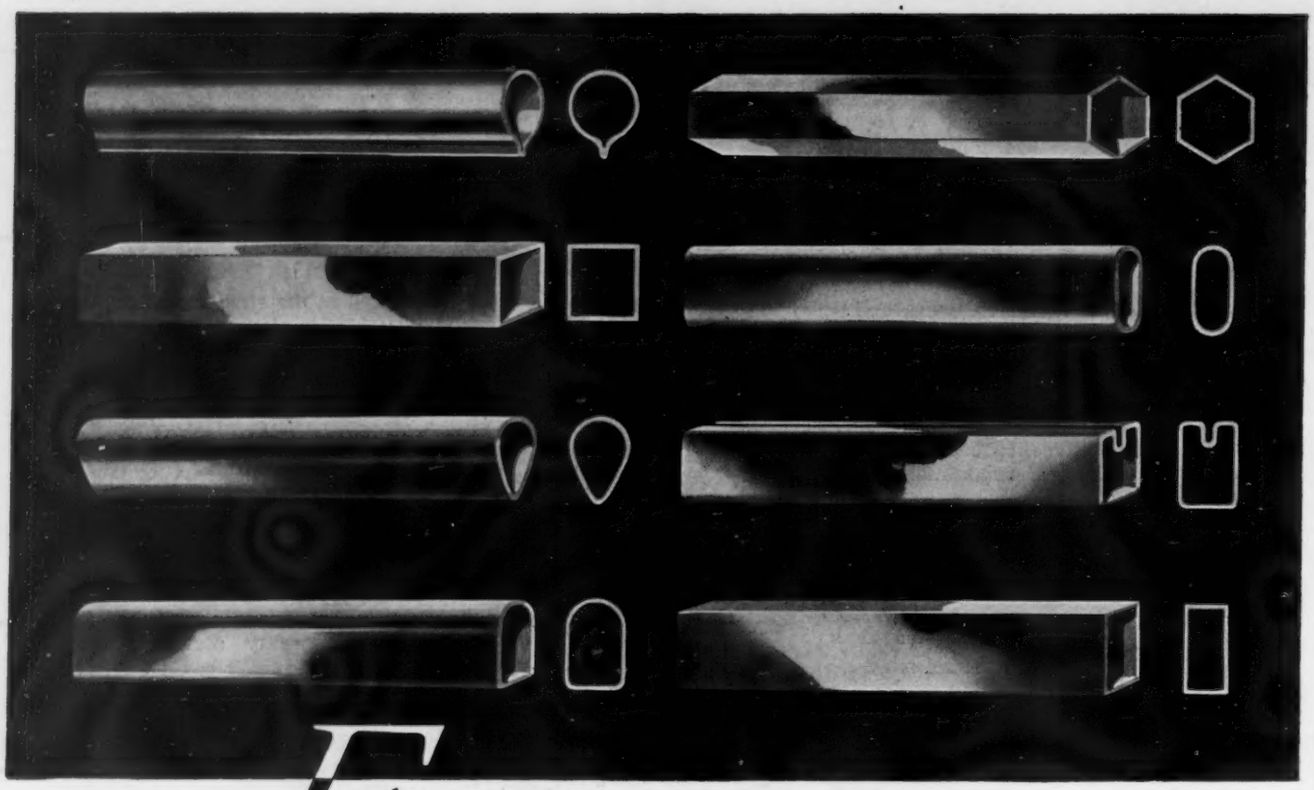
◆

### Ducts Provide Modern Method Of Electrical Wiring

Square D Co., Switch & Panel division, Detroit, recently announced a product known as Square-Duct which furnishes a rigid suspension method for wiring. The new product consists of standard length ducts with full length hinged covers and various fittings to meet all conditions of installation so that a flexible wiring system, instantly accessible at any point, is provided. Closely spaced knock-out holes permit conduit or armoured cable connections at any point of the system. Two sizes, 2½ x 2½ inches and 4 x 4 inches, are available.



*HIGH-SPEED automatic wire straightening and cutting machine developed by F. B. Shuster Co. A substantial bed is mounted on heavy legs, and the pipe supporting the extension is cast into the bed, all of which results in rigid construction*



# *Enduro tubing*

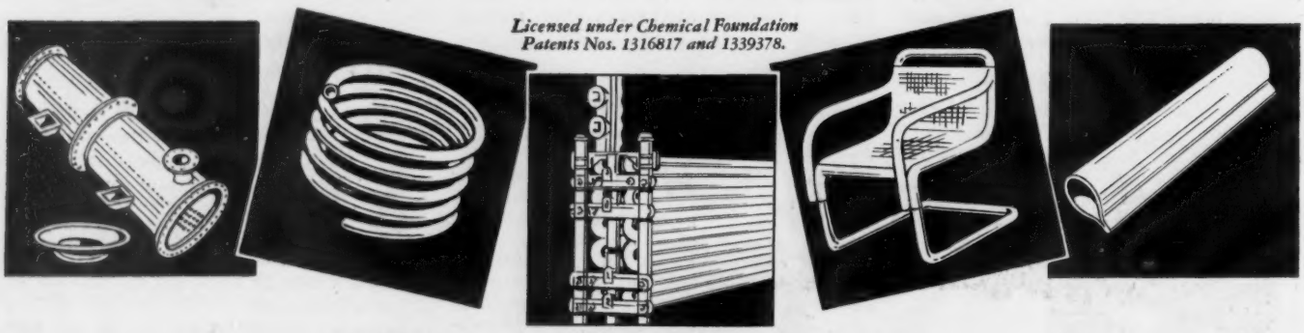
## HOLDS MANY POSSIBILITIES

As knowledge of ENDURO, Republic's Perfected Stainless Steel, becomes more widespread, its uses in the form of tubing multiply. Industry after industry is finding new uses for tubing made of this life-long metal—where tubing stronger than carbon steel yet lighter in weight is required—where tubing resistant to corrosion in the highest degree is required—where it is necessary to employ tubing that will withstand high temperatures without scaling and that will show high creep strength—where tubing must convey food products and freedom from metallic contamination is a vital consideration—and where chemicals must pass through tubing without change in their composition.

Electrunite Tubing is made by electrical resistance welding of cold formed strip of the correct stainless analysis to meet specific service conditions—ENDURO 18-8 and other chromium-nickel analyses. It is manufactured in a wide range of sizes, shapes and finishes. And the selection of the correct grade of ENDURO is made easy through the wide experience of the metallurgical staff of the world's largest producer of alloy steels.

Descriptive literature will be sent on request.

*Licensed under Chemical Foundation Patents Nos. 1316817 and 1339378.*



**STEEL AND TUBES, INC.**

*WORLD'S LARGEST PRODUCER OF ELECTRICALLY WELDED TUBING*

CLEVELAND • • • OHIO

A UNIT OF REPUBLIC STEEL CORPORATION

# Markets Halt as New Schedules Are Scanned

## Buyers Hesitant Until New Prices and Extras Are Digested—More Changes in Extras than Base Prices—Steel Rate Off 3 Points to 45%—August Iron Output Up

LABOR DAY this year inaugurates for iron and steel a period of restricted buying and price digestion rather than the customary fall upturn in demand.

Schedules of prices, basing points, extras, differentials, switching charges and other data filed with the American Iron and Steel institute in accordance with the industry's code have so deranged buying and selling relationships as to check almost completely market activity.

Fully two weeks will elapse before producers and consumers again talk the same language. In the meantime, whatever expansion occurs in the consumption of steel—and indications are that the trend will be up rather than down—will be largely satisfied by drafts upon inventories. Buying over the next fortnight will be limited to urgent requirements.

For the long pull, however, the outlook is improved. There is a strong underlying sentiment that, once price complications have been adjusted, the market will snap back fast. The industry believes that if general business does not expand spontaneously it will be induced by an inflationary program at Washington.

Another factor that may end the present stalemate later in the month is the filing of prices for the fourth quarter. With few exceptions, current prices are for the remainder of this quarter only. If advances are published in those products on which prices have merely been extended, the incentive to specify will be supplied.

Indicative of the present holdup in demand, steelworks operations in the week ended Sept. 2 eased off 3 more points to 45 per cent, lowest since the last week of May. New England, Wheeling, Birmingham and Detroit held at 85, 80, 55 and 55 per cent respectively; other districts declined 1 to 7 points. This week, the rate will not top 40 per cent by much.

Though a net loss of seven in active blast furnace stacks Aug. 31 augurs a decline in September, pig iron production continued to mount in August. The August daily rate of 59,011 gross tons was a gain of 903 tons or 1.5 per cent over July; the August total was 1,829,345 tons, or 28,000 tons greater than July. Both daily rate and total were the largest since May, 1931.

Chesapeake & Ohio railroad was to distribute 31,481 tons of rails this week, the Steel corporation probably booking half. August freight car awards totaled 202, compared with 5 a year ago; the 8-month total for 1933 is 1074, against 389 in 1932.

Structural awards were down to 8083 tons, but prospects were brightened by an RFC loan for a Hudson river tunnel requiring 50,000 tons of cast iron segments. For Mississippi river dams and locks 10,000 tons of piling is needed.

Schedules filed but not yet officially promulgated show the following: Bars, plates and shapes stationary at 1.60c, Pittsburgh, but the Chicago base now 1.65c instead of 1.70c; wire unchanged; strip unchanged; cold-finished bars unchanged; tin plate up 40 cents per base box to $4.65; structural shapes on Pacific coast advanced $1; cold-rolled sheets of autobody and furniture quality up $3; billet and rail steel reinforcing bars up $4 to $6; by-product coke put up 50 cents; floor plates made 3.10c, Pittsburgh, and 3.15c, Chicago; warehouse prices on large rivets increased 25 cents to 3.25c at Pittsburgh and Detroit; standard pipe, line pipe and oil country tubular goods prices reaffirmed, but adjustments made in boiler tubes; bars, plates, sheets and strip clearly defined; jobber differentials eliminated; a $5 extra for guaranteed forging quality bars; light rails of billet quality made $34, Pittsburgh, with other light rails $32.

The net result of these changes in price is a rise of $1.13 in the iron and steel composite of STEEL to $31.23, and an advance of 80 cents in the finished steel composite, to $48.30. But scrap, reactionary in all districts as melters spurn offers, has declined 58 cents to $11.

## Composite Market Averages

| | Sept. 2 | Aug. 26 | One Month Ago Aug., 1933 | Three Months Ago June, 1933 | One Year Ago Sept., 1932 | Ten Years Ago Sept., 1923 |
|---|---|---|---|---|---|---|
| Iron and Steel Composite | $31.23 | $30.10 | $30.04 | $28.73 | $29.32 | $44.64 |
| Finished Steel Composite | 48.30 | 47.50 | 11.57 | 9.55 | 7.04 | 68.05 |
| Steelwork Scrap Composite | 11.00 | 11.58 | 447.50 | 45.30 | 47.50 | 68.05 |

Iron and Steel Composite:—Pig iron, billets, slabs, sheet bars, wire rods, tin plate, nails, sheets, plates, shapes, bars, and black pipe. Finished Steel Composite:—Plates, shapes, bars, hot strip, nails, tin plate, pipe. Steelworks Scrap Composite:—Melting steel, compressed sheets.

# COMPARATIVE PRICES OF IRON, STEEL AND COKE

**Representative Market Figures for Current Week; Average for Last Month, Three Months and One Year Ago**

| | Sept. 2, 1933 | Aug. 1933 | June 1933 | Sept. 1932 |
|---|---|---|---|---|
| **Pig Iron** | | | | |
| Bessemer, del. Pittsburgh | 19.26 | 18.26 | 17.26 | 15.76 |
| Basic, valley | 17.00 | 16.00 | 15.00 | 14.00 |
| Basic, eastern, del. eastern Pa. | 18.19 | 17.38 | 16.19 | 13.75 |
| No. 2 foundry, del. Pittsburgh | 18.76 | 17.76 | 16.76 | 15.76 |
| No. 2 foundry, Chicago | 17.50 | 17.00 | 16.00 | 15.50 |
| *Southern No. 2, Birmingham | 13.50 | 13.00 | 12.00 | 11.00 |
| **No. 2X, Eastern, del. Phila. | 18.63 | 17.88 | 16.76 | 14.26 |
| Malleable, valley | 17.50 | 16.50 | 15.50 | 14.50 |
| Malleable, Chicago | 17.50 | 17.00 | 16.00 | 15.50 |
| Lake Superior charcoal, del. Chi. | 23.54 | 23.04 | 23.04 | 23.04 |
| Gray forge, del. Pittsburgh | 18.13 | 17.13 | 16.63 | 15.63 |
| Ferromanganese, del. Pittsburgh | 87.24 | 87.24 | 73.24 | 73.24 |

*1.75-2.25 silicon. **2.25-2.75 silicon.

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c per gross ton, beginning Jan. 4, 1932.

| | | | | |
|---|---|---|---|---|
| **Coke** | | | | |
| Connellsville, furnace, ovens | 2.50 | 2.75 | 1.80 | 2.00 |
| Connellsville, foundry, ovens | 3.00 | 3.10 | 2.40 | 2.75 |
| **Semifinished Material** | | | | |
| Sheet bars, open-hearth, Youngs. | 26.00 | 26.00 | 26.00 | 26.00 |
| Sheet bars, open-hearth, Pitts. | 26.00 | 26.00 | 26.00 | 26.00 |
| Billets, open-hearth, Pittsburgh | 26.00 | 26.00 | 26.00 | 26.00 |
| Wire rods, Pittsburgh | 35.00 | 35.00 | 35.00 | 37.00 |

| | Sept. 2, 1933 | Aug. 1933 | June 1933 | Sept. 1932 |
|---|---|---|---|---|
| **Finished Material** | | | | |
| Steel bars, Pittsburgh | 1.60 | 1.60 | 1.60 | 1.60 |
| Steel bars, Chicago | 1.65 | 1.70 | 1.70 | 1.70 |
| Steel bars, Philadelphia | 1.91 | 1.91 | 1.91 | 1.91 |
| Iron bars, Chicago | 1.60 | 1.65 | 1.65 | 1.65 |
| Shapes, Pittsburgh | 1.60 | 1.60 | 1.60 | 1.60 |
| Shapes, Philadelphia | 1.81 ½ | 1.81½ | 1.65 | 1.75 |
| Shapes, Chicago | 1.65 | 1.70 | 1.70 | 1.70 |
| Tank plates, Pittsburgh | 1.60 | 1.60 | 1.55 | 1.60 |
| Tank plates, Philadelphia | 1.79½ | 1.79½ | 1.49½ | 1.79½ |
| Tank plates, Chicago | 1.65 | 1.70 | 1.70 | 1.70 |
| Sheets, No. 10 blue anneal., Pitts. | 1.65 | 1.65 | 1.65 | 1.70 |
| Sheets, No. 24, hot ann., Pitts. | 2.25 | 2.25 | 2.10 | 2.10 |
| Sheets, No. 24, galvan., Pitts. | 2.85 | 2.85 | 2.70 | 2.75 |
| Sheets, No. 10 blue anneal., Chi. | 1.93 ½ | 1.95 | 1.95 | 1.85 |
| Sheets, No. 24 hot ann., Chicago | 2.38 ½ | 2.40 | 2.40 | 2.25 |
| Sheets, No. 24 galvan., Chicago | 2.98 ½ | 3.00 | 3.00 | 2.90 |
| Plain wire, Pittsburgh | 2.10 | 2.10 | 2.10 | 2.20 |
| Wire nails, Pittsburgh | 2.10 | 2.10 | 1.85 | 1.95 |
| Tin plate, per base box, Pitts. | 4.65 | 4.25 | 4.25 | 4.75 |
| **Scrap** | | | | |
| Heavy melting steel, Pitts | $13.25 | 13.75 | 11.65 | 9.50 |
| Heavy melting steel, eastern Pa. | 10.50 | 12.00 | 9.50 | 7.25 |
| Heavy melting steel, Chicago | 10.00 | 10.40 | 9.25 | 5.75 |
| No. 1 wrought, eastern Pa. | 13.00 | 13.00 | 10.25 | 7.25 |
| No 1 wrought, Chicago | 9.25 | 10.35 | 8.10 | 5.60 |
| Rails for rolling, Chicago | 11.25 | 11.25 | 10.25 | 7.00 |

# Sheets

**Autobody Grades Advanced $3 A Ton—Many Extras To Be Applied — Sales Are Lighter**

SHEET PRICES, PAGE 51

**Pittsburgh** — Producers now are accepting all new sheet business on the following Pittsburgh base prices: No. 24 black sheets, 2.25c; galvanized 2.85c; tin mill black, 2.50c; blue annealed, 1.65c; heavy autobody, 2.30c; light autobody, 2.75c. Wide sheets for autobody use are in good demand and one important producer is booked through September. Several trial orders for sheets for 1934 automobiles were placed last week. Improvement in galvanized may appear soon from rural districts. The mill-run classification of cold-rolled sheets probably will obtain until the beginning of the fourth quarter as at least three mills still are selling on this basis.

**Cleveland**—Many sheet consumers covered requirements for the remainder of the third quarter prior to Aug. 29 when new prices were filed under the steel industrial code, and hence they will be unaffected by any changes during September. This was particularly true of automotive buyers, refrigerator interests and barrel-makers. Autobody prices, under the code, have been advanced $3 a ton, to 2.30c, Pittsburgh, for No. 10 gage, and 2.75c, for No. 20. Other base prices were not changed from recent official levels, though a large number of gage and quality extras have been adopted. Shipments have tapered, and the volume of new orders during the week showed further reduction, though including several substantial tonnages from automotive interests. Sheet mill operations here have been reduced to 50 per cent.

**Chicago**—Cold-rolled sheets have been advanced under the steel code, and while quotations on other grades are unchanged new differentials on heavier gages of hot-rolled and galvanized material result in increases in net prices. On Chicago delivery, charges now are 3½ cents per 100 pounds compared with 5 cents previously. No. 10 cold-rolled sheets are quoted 2.40c, base, against 2.10c, formerly, with No. 20 gage advanced from 2.55c to 2.85c. Shipments and operations continue heavy. Orders previously booked at old prices will not be affected by new quotations since these were for prompt delivery.

**Boston**—New buying is light, although consumers are generally taking full shipments against third quarter contracts. Beyond that time neither buyers nor sellers have been in a position to close, due to code uncertainties which are now clearing away. Some spot buying has been done at firm prices.

**New York**—Higher base prices on No. 10 and No. 20 cold-rolled sheets, elimination of mill-run and furniture classifications, and various changes in the list of extras, are outstanding developments in the sheet market here. New gage extras on black represent $3 a ton advance for gages under 24 and down to 16. On galvanized and long ternes the advance is $3 a ton on practically all gages under No. 24. New quantity extras also are being applied. The United States Steel Products Co. booked 12,000 tons of the 43,000 tons of galvanized sheets ordered by the Argentine government.

**Cincinnati**—Some improvement in sheet orders is noted, with automotive demand fairly steady. An important interest in this district continues to quote on a Pittsburgh base point.

## Pittsburgh Jobbers Organize

Jobbers of steel products in the Pittsburgh district held a meeting Sept. 1 at the Duquesne club, Pittsburgh, for the purposes of organizing a local chapter to the American Warehouse association. Prominent jobbers in the Pittsburgh district attended.

# CURRENT FINISHED STEEL PRICES

*Prices revised, so far as possible, in conformity with new schedules. Consult also changes in extras, differentials etc. as listed beginning page 11*

## Sheet Steel

HOT ROLLED No. 10
(24 to 48 inches wide)

| | |
|---|---|
| **Pittsburgh, base** | **1.65c** |
| Gary, base | 1.75c |
| Chicago, del. | 1.785c |
| **New York, del.** | **2.00c** |
| **Birm., base** | **1.80c** |
| **Phila., del.** | **1.96c** |
| **St. Louis, del.** | **1.84c** |

HOT ROLLED ANN. No. 10

| | |
|---|---|
| **Pittsburgh, base** | **1.80c** |
| Gary, base | 1.90c |
| Chicago, del. | 1.935c |
| **Phila., del.** | **2.11c** |
| **New York, del.** | **2.15c** |
| **St. Louis, del.** | **1.99c** |
| **Birm., base** | **1.95c** |
| **San Fran., c.i.f.** | **2.27½c** |

HOT ROLLED ANNEALED
No. 24

| | |
|---|---|
| **Pittsburgh, base** | **2.25c** |
| Gary, base | 2.35c |
| Chicago, del. | 2.385c |
| **New York, del.** | **2.60c** |
| **Phila., del.** | **2.56c** |
| **Birm., base** | **2.40c** |
| **St. Louis, del.** | **2.59c** |
| **San Fran., c.i.f.** | **2.90c** |

GALVANIZED No. 24

| | |
|---|---|
| **Pittsburgh, base** | **2.85c** |
| Gary, base | 2.95c |
| Chicago, del. | 2.985c |
| **Phila., del.** | **3.16c** |
| **New York, del.** | **3.20c** |
| **Birm., base** | **3.00c** |
| **St. Louis, del.** | **3.19c** |
| **San Fran., c.i.f.** | **3.50c** |

TIN MILL BLACK No. 28

| | |
|---|---|
| **Pittsburgh, base** | **2.50c** |
| **Gary, base** | **2.60c** |
| **St. Louis, del.** | **2.84c** |

COLD ROLLED No. 10

| | |
|---|---|
| Pittsburgh, base | 2.30c |
| Gary, base | 2.40c |
| Philadelphia, del. | 2.61c |
| New York, del. | 2.65c |

No. 20

COLD ROLLED No. 20

| | |
|---|---|
| Pittsburgh, base | 2.75c |
| Gary, base | 2.85c |
| Philadelphia, del. | 3.06c |
| New York, del. | 3.10c |

ENAMELING SHEETS

| | |
|---|---|
| Pitts., No. 10 | 2.40c to 2.45c |
| Pitts., No. 20 | 2.90c |

## Tin and Terne Plate

Per 100-lb. box, Pittsburgh

| | |
|---|---|
| Tin plate, coke base, contract | $4.65 |
| Do., stock | 4.05 |
| Long ternes, No. 24 unassorted | 2.90c |

Gary base, 10 cents higher.

## Corrosion, Heat Resistant Alloys

Base, Pittsburgh

18% chrome, 8% nickel sheets, 35c; plates, 31c; bars, 28c.

| | A | B | C | D |
|---|---|---|---|---|
| Bars | 19c | 20.5c | 23c | 28c |
| Plates | 21c | 22.5c | 25c | 30c |
| Sheets | 26c | 27.5c | 30c | 35c |
| Hot Strip | 19c | 20.5c | 23c | 28c |
| Cold Strip | 25c | 26.5c | 29c | 34c |

Carbon 0.12 and under; no nickel. A has chrome 15% and under. B over 15/18% inc., C over 18/23% inc., D over 23/30%.

## Steel Plates

| | |
|---|---|
| Pittsburgh, base | 1.60c |
| New York del. | 1.90c |
| Phila., del. | 1.79½c |
| Boston, del. | 2.02c |
| Buffalo, del. | 1.85½c |
| Chicago, base | 1.65c |
| Cleveland, del. | 1.80½c |
| Birmingham, base | 1.75c |
| Coatesville, base | 1.70c |
| Sparrows Point, base | 1.70c |
| Pac. Coast, c.i.f. | 2.15c |
| St. Louis, del. | 1.94c |

## Structural Shapes

| | |
|---|---|
| Pittsburgh, base | 1.60c |
| Philadelphia, del. | 1.81½c |
| New York, del | 1.87c |
| Boston, del. | 2.00½c |
| Bethlehem base | 1.70c |
| Chicago, base | 1.65c |
| Cleveland, del. | 1.80½c |
| Lackawan., base | 1.70c |
| Birmingham, base | 1.75c |
| Pacific Coast, c.i.f. | 2.15c |
| Do., wide flange | 2.25c |

## Bars

SOFT STEEL

| | |
|---|---|
| Pittsburgh, base | 1.60c |
| Chicago, base | 1.65c |
| Birmingham, base | 1.75c |
| Lackawan., base | 1.70c |
| Pacific Coast ports, c.i.f. | 2.10c |
| Cleveland, base | 1.65c |
| Philadelphia, del. | 1.91c |
| New York, del. | 1.95c |
| Pitts., forg. qual. | 1.75 and 1.85c |

RAIL STEEL

| | |
|---|---|
| Pitts., Buff. | 1.50c |
| Chicago, base | 1.55c |
| Eastern mills | 1.50c |

IRON

| | |
|---|---|
| Chicago, base | 1.60c |
| Philadelphia, base | 1.60c |
| Pitts., refined | 2.70c to 4.20c |

REINFORCING

| | |
|---|---|
| New billet steel, Chi., Young., Buff., Cleve., Birm. cut lengths | 1.85c |
| Pitts., cut lengths | 1.80c |
| Rail steel, Chi. | 1.80c |
| Phila., cut lengths | 2.21c |

## Wire Products

(Prices apply on carload lots. Mixed carloads 10 cents higher; joint carloads up 20 cents; less carloads up 30 cents. Nail extras subject to 10 per cent discount on straight or mixed carload shiped to single consignee.)

F.o.b. mills, 100 lb. keg

| | |
|---|---|
| Standard wire nails | $2.10 |
| Cement coated nails | 2.10 |
| Galvanized nails | 3.60 |

(Per pound)

| | |
|---|---|
| Polished staples | 2.80c |
| Galvanized fence staples | 3.05c |
| Barbed wire, gal. | 2.60c |
| Annealed fence wire | 2.25c |
| Galvanized wire | 2.60c |
| Woven wire fencing (base column, c.l.) | $55.00 |

(To Manufacturing Trade)

Plain wire, 6-9 ga 2.10c

Anderson, Ind., and Chicago, $1 over Pitts.-Cleve.; Duluth and Worcester, $2 higher; Fairfield, Ala., $3 higher.

Spring wire 3.10c

Chicago and Waukegan $1 higher, Worcester $2 higher.

## Cold-Finished Bars

Base Pitts., one size, shape, grade, shipment at one time to one destination

| | |
|---|---|
| 10,000 to 19,999 lbs | 1.95c |
| 20,000 to 59,999 lbs. | 1.90c |
| 60,000 to 99,999 lbs. | 1.85c |
| 100,000 lbs. and over | 1.82½c |

Chicago, Cleveland, Buffalo 5c higher; Detroit, 20c; eastern Michigan 25c.

## Shafting

(Turned and ground)

Cumberland, Md., base

| | |
|---|---|
| 1⅛-inch | 3.25c |
| 1⅛ to 1½-inch | 2.75c |
| 1⅝ to 1⅞-inch | 2.60c |
| 1⅞ to 2⅞-inch | 2.45c |
| 2⅞ to 6-inch | 2.30c |

## Alloy Steel

Hot rolled, f.o.b. Pittsburgh, Buffalo, Chicago and Massillon, O. Base 2.45c.

Differentials to various classes of consumers.

| S.A.E. | Alloy Diff. | S.A.E. | Alloy Diff. |
|---|---|---|---|
| 2000 | 0.25 | 3100 | 0.55 |
| 2100 | 0.55 | 3200 | 1.35 |
| 2300 | 1.50 | 3300 | 3.30 |
| 2500 | 2.25 | 3400 | 3.20 |

| | |
|---|---|
| 4100 .15 to .25 Mo | 0.50 |
| 4600 .20 to .30 Mo. 1.25-1.75 Ni. | 1.05 |
| 5100 .80-1.10 Cr. | 0.45 |
| 5100 Cr. spring | 0.20 |
| 6100 bars | 1.20 |
| 6100 spring | 0.95 |
| Cr., Ni., Van. | 1.50 |
| Carbon van. | 0.95 |
| 9250 (flats) | 0.25 |
| 9250 (rds., sq.) | 0.50 |

## Strip, Hoops, Bands

| | |
|---|---|
| Hot-rolled strip up to 23 15/16-in. wide, Pitts. | 1.65c |
| Do., Chicago | 1.75c |
| Do., del. Phila. | 1.96c |
| Do., del. N. Y. | 2.00c |
| Cooperage hoop, Pittsburgh | 1.75c |
| Do., Chicago | 1.85c |
| Cold-rolled strip Pitts,, Cleve. | 2.25c |
| Worcester, 3 tons or over | 2.45c |

## Rails, Track Material

| | |
|---|---|
| Stand. rails, mill | $40.00 |
| Relaying rails, Pitts., 20-45 lbs. | $23.00 |
| 50 to 75 | $20.00 |
| 80 to 100 | $23.00 to 24.00 |
| Light rails, 60 lb. or less, billet qual., Pitts. | $34.00 |
| Do., reroll. qual. | $32.00 |
| Angle bars, mills | 2.55c |
| Spikes, boat, Pitts. | 2.65c |
| Spikes, R. R., Pitts. | 2.40c |
| Track bolts, base | 3.40c |
| Tie plates, Pitts. | 1.90c |
| Tie plates, Chi. | 1.90c |

Base, railroad spikes 200 kegs or more; base tie plates, 20 tons or more; differentials for less.

## Rivets, Wrought Washers

| | |
|---|---|
| Struc. c.l., Pitts-Cleve. | 2.50c |
| Struc., c.l., Chi. | 2.60c |
| 7/16-in. & smaller, Pitts., Chi., Cleve. | 70, 10 and 5 off |
| Washers, c.l., Pitts. and Chicago | 6.25 off |

## Bolts and Nuts

Pittsburgh, Cleveland, Birmingham, Chi. Discounts to legitimate jobbing or large consuming trade for full-case lots, Dec. 1, 1932, lists.

CARRIAGE BOLTS

| | |
|---|---|
| All sizes, cut thread | 73 off |
| Rolled thread, ½ x 6 and smaller | 73 off |

MACHINE BOLTS

| | |
|---|---|
| All sizes, cut thread, lag screws, plow bolts, Nos. 1-2-3-7 heads, tap bolts, blank bolts, stud bolts without nuts | 73 off |
| Tire bolts | 60 off |
| Stove bolts, 72½-25-10 off in pkgs.; 85 off in bulk, 5000 or more of a size. | |
| Rolled thread machine bolts, ½ x 6 and smaller, 73 off | |
| Step Bolts | 70 off |
| Elevator bolts | 70 off |

NUTS

| | |
|---|---|
| Semifinished | 73 off |

HEXAGON CAP SCREWS

| | |
|---|---|
| Milled | 85 off |
| Upset 1-in., smaller | 85-10 off |

SQUARE HEAD SET SCREWS

| | |
|---|---|
| Upset, 1-in., smaller | 80 off |
| Upset, larger than 1-in. | 80 off |
| Headless set screws | 75-10 off |

## Cut Nails, Piling

| | |
|---|---|
| Cut nails, Pitts.; (10% discount on size extras) | $2.75 |
| Do. less carloads, 5 kegs or more; no discount on size extras | $3.00 |
| Do., less than 5 kegs; no discount on size extras | $3.15 |
| Steel piling, Pitts. | 1.90c |
| Steel piling, Buff. | 2.00c |
| Steel piling, Chi. | 2.00c |

## Pipe and Tubing

Base $200 net ton, except on standard commercial seamless boiler tubes under 2 inches and cold drawn seamless tubing.

## Welded Iron, Steel Pipe

Base discounts on steel pipe, Pittsburgh and Lorain, O., to consumers in carloads, Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago delivered, 2½ points less. Wrought pipe, Pittsburgh base.

BUTT WELD

Steel

| In. | Blk. | Gal. |
|---|---|---|
| ¼ and ⅜ | 57 | 38½ |
| ½ | 62 | 50½ |
| ¾ | 65½ | 55½ |
| 1—3 | 67½ | 58½ |

Iron

| | | |
|---|---|---|
| ½ | 31½ | 15 |
| ¾ | 36½ | 20½ |
| 1—1¼ | 39½ | 25½ |
| 2 | 41½ | 26 |

LAP WELD

Steel

| | | |
|---|---|---|
| 2 | 63½ | 54½ |
| 2½—3 | 66½ | 57½ |
| 3½—6 | 68½ | 59½ |
| 7 and 8 | 67½ | 57½ |
| 9 and 10 | 67 | 57 |

Iron

| | | |
|---|---|---|
| 2 | 37 | 22½ |
| 2½—3½ | 38 | 25 |
| 4—8 | 40 | 28½ |
| 9—12 | 38 | 24½ |

(*Please turn to next page*)

## Cast Iron Water Pipe

*Class B Pipe—Per Net Ton*

| | |
|---|---|
| 6-in. & over, Birm. | $35.00-36.00 |
| 4-in., Birm. | 38.00-39.00 |
| 4-in. Chicago | 46.40-47.40 |
| 6 to 24-in. Chicago | 43.40-44.40 |
| 6-in. & over, N. Y. | 32.00-34.50 |
| 4-in. New York | 34.50-36.50 |

Class A pipe $3 over Class B.
Stand. fitgs., Birm. base $90.00

## Iron Ore

LAKE SUPERIOR ORE
*Gross ton, 51½%, Lower Lake Ports*

| | |
|---|---|
| Old range bess. | $4.30 |
| Mesabi bessemer | 4.65 |
| Old range nonbess. | 4.65 |
| Mesabi nonbess. | 4.50 |
| High phosphorus | 4.40 |

EASTERN LOCAL ORES
*Cents, unit, del. E. Pa.*

| | |
|---|---|
| Foundry and basic, 56-63%, con. (nom.) | 8.00- 9.00 |
| Cop-free low phos. 58-65% (nom.) | 10.00-10.50 |

FOREIGN ORE
*Cents per unit, f.a.s. Atlantic ports (nom.)*

| | |
|---|---|
| Foreign manganiferous ore, 45-55% iron, 6-10% man. | 8.50 |
| No. Afr. low phos. | 7.00 |
| Swedish basic, 65% | 8.00 |
| Swedish lo wphos. | 8.50 |
| Spanish, No. Afr. basic, 50 to 60%. | 7.00 |
| Tungsten, spot, sh. ton unit, duty pd. | $12.00-12.50 |
| N. F. fdy., 55% | 7.00 |
| Chrome ore, 48% gross ton c.i.f. | $17.00-18.00 |

## Manganese Ore

*(Nominal)*

Prices, not including duty, cents per unit, cargo lots.

| | |
|---|---|
| Caucasion, 52-55% | 22.00 |
| So. African, 52% | 21.00-22.00 |
| So. Afr., 49-51% | 20.00-21.00 |
| Indian, 48-50% | nominal |

## Refractories

FIRE CLAY BRICK
*Per 1000 f.o.b. Works*
*First Quality*

| | |
|---|---|
| Pa., Ohio, Ill., Ky., Md., Ga., Mo. | $45.00 |
| Alabama | 48.00 |

*Second Quality*

| | |
|---|---|
| Pa., Ohio, Ill., Ky., Md., Mo., Ga., Ala. | 40.00 |
| MALLEABLE BUNG BRICK | |
| All bases | 50.00 |

SILICA BRICK

| | |
|---|---|
| Pennsylvania | $45.00 |
| Joliet E. Chicago | 54.00 |
| Birmingham, Ala. | 55.00 |

MAGNESITE BRICK
*Per Net Ton, 9 x 4½ x 2½*

| | |
|---|---|
| Burned | $65.00 |
| Unburned | 55.00 |

CHROME BRICK
*Per Net Ton*

| | |
|---|---|
| F.o.b. ship. point | $45.00 |

MAGNESITE

| | |
|---|---|
| Dead burned grain, Chester, Pa., Baltimore bases, net | 40.00 |
| Domes, Chewelah, Wash., base | 22.00 |

## Fluorspar

*85 to 5 per cent grade*

| | |
|---|---|
| Washed gravel, duty paid, tide, gross ton | $20.00 |
| Washed gravel f.o.b. Ill., Ky., net ton, carloads | $14.00 |

## Semifinished Steel

*Prices Per Gross Ton*

BILLETS AND BLOOMS
*4 x 4-inch base*

| | |
|---|---|
| Pitts., Chi., Cleve., open-hth. & bess. | $26.00 |
| Philadelphia | 31.75 |
| Forging, Pitts., Chi. | 31.00 |

SHEET BARS

| | |
|---|---|
| Pitts., Cleve., Yong. | 26.00 |
| Chicago | 26.00 |
| Canton, O. | 26.00 |

SLABS

| | |
|---|---|
| Pitts., Cleve., Yong. | 26.00 |

WIRE RODS

| | |
|---|---|
| Pitts., Cleveland | $35.00 |
| Chicago | 36.00 |

SKELP

| | |
|---|---|
| All grades, Pitts. | 1.60c |

## Coke

*Price Per Net Ton*
BEEHIVE OVENS

| | |
|---|---|
| Connellsville fur. | $2.50- 2.75 |
| Connellsville fdry. | 3.00- 3.25 |
| Connell. prem. fdry. | 4.50 |
| New River fdry. | 6.00 |
| Wise county fdry. | 4.25- 5.00 |
| Wise county fur. | 3.50- 4.25 |

BY-PRODUCT FOUNDRY

| | |
|---|---|
| Newark, N. J., del. | 8.21- 8.81 |
| Chi. ov., outside del. | 8.00 |
| Chicago, del. | 8.75 |
| New England, del. | 10.00 |
| St. Louis, del. | 7.75 |
| Birmingham, ovens | 4.50 |
| Indianapolis, del. | 8.75 |
| Ashland, Ky., Connells., basis | 5.50 |
| Portsmouth, ovens, Connell. basis | 5.50 |
| Buffalo, ovens | 7.50- 8.00 |
| Detroit, ovens | 8.00 |
| Philadelphia, del. | 8.50 |

## Ferroalloys

*(In dollars, except Ferrochrome)*

| | |
|---|---|
| Ferromanganese, 78-82% tidewater, duty pd. | 82.00 |
| del. Pitts. | 87.24 |
| Spiegeleisen, 19-20%, dom., fur., spot† | 27.00 |
| Ferrosilicon, 50%, frieght all., c. l. | 74.50 |
| Do, less carload | 82.50 |
| Do, 75 per cent | 120-130.00 |
| Spot, $5 a ton higher. | |
| Silicomang., 2½ carb. | 85.00 |
| 2% carbon | 90.00 |
| 1% carbon | 100.00 |
| Ferrodhrome, 66-70 chromium, 4-6 carbon, cts. lb. con. del. | 9.50 |
| Do, spot del. | 10.00 |
| Ferrotungsten, stand., lb. cont. | 1.04 -1.10 |
| Ferrovanadium, 35 to 40%, lb. cont., on analysis | 2.60- 2.80 |
| Ferrotitanium, c.l., prod. plant, frt. allow., net ton | 137.50 |
| Spot, 1 ton, frt., all., lb. | 8.50 |
| Do, under 1 ton | 9.00 |
| Ferrophosphorus, per ton, c. l. 17-19%, Rockdale, Tenn., basis; 18%, $2 unitage | 42.00 |
| Ferrophosphorus, electrolytic, per ton c. l., 23-26% f.o.b. Anniston, Ala., 24% $2.50 unitage | 55.00 |
| Ferromolybdenum, stand. 50-60%, lb | 0.95 |
| Molybdate, lb. cont. | 0.80 |

†Carloads. Quan. diff. apply.

## Pig Iron

*Gross Tons*

| | No. 2 Foundry | Malleable | Basic | Bessemer |
|---|---|---|---|---|
| Basing Points: | | | | |
| Bethlehem, Pa. | $17.50 | $18.00 | $17.00 | $18.50 |
| Birdsboro, Pa. | 17.50 | 18.00 | 17.00 | ..... |
| Swedeland, Pa. | 17.50 | 18.00 | 17.00 | 18.50 |
| Sparrows Point, Md. | 17.50 | 18.00 | 17.00 | 18.50 |
| From above basing points, delivered, Philadelphia | 18.76 | 19.16 | 18.16 | *19.76 |
| Basing Points: | | | | |
| Everett, Mass. | 18.00 | 18.50 | 17.50 | 19.00 |
| Buffalo | 17.50 | 18.00 | 17.00 | 18.50 |
| From Buffalo delivered to | | | | |
| Boston | 19.50 | 20.00 | 19.00 | 20.50 |
| Brooklyn | 19.77 | 20.27 | 19.27 | 20.77 |
| Newark, N. J. | 18.89 | 19.39 | 18.39 | 19.89 |
| Basing Points: | | | | |
| Neville Island, Pa. | 18.00 | 18.00 | 17.50 | 18.50 |
| Sharpsville, Pa. | 17.50 | 17.50 | 17.00 | 18.00 |
| Youngstown, O. | 17.50 | 17.50 | 17.00 | 18.00 |
| From above basing points, delivered, Pittsburgh | 18.63 to 19.13 | 18.63 to 19.13 | 18.13 to 18.63 | 19.13 to 19.63 |

*Except Birdsboro, Pa.

| | | | | |
|---|---|---|---|---|
| Basing Points: | | | | |
| Erie, Pa. | 17.50 | 18.00 | 17.00 | 18.50 |
| Cleveland | 17.50 | 17.50 | 17.00 | 18.00 |
| Toledo, O. | 17.50 | 17.50 | 17.00 | 18.00 |
| Detroit | 17.50 | 17.50 | 17.00 | 18.00 |
| From Cleveland, delivered, Akron, Canton, O. | 18.76 | 18.76 | 18.26 | 19.26 |
| From Toledo, delivered to: | | | | |
| Mansfield, O. | 19.39 | 19.39 | 18.89 | 19.89 |
| Detroit | 18.60 | 18.60 | 18.10 | 19.10 |
| Saginaw, Mich. | 20.53 | 20.53 | 20.03 | 21.03 |
| Basing Point: | | | | |
| Hamilton, O. | 17.50 | 17.50 | 17.00 | 18.00 |
| From Hamilton, delivered to Cincinnati | 18.63 | 18.63 | 18.13 | 18.13 |
| Basing Points: | | | | |
| Duluth | 18.00 | 18.00 | ..... | 18.50 |
| Chicago | 17.50 | 17.50 | 17.00 | 18.00 |
| Granite City, Ill. | 17.50 | 18.00 | 17.00 | ..... |
| From Chicago delivered to | | | | |
| Milwaukee | 18.60 | 18.60 | 18.10 | 19.10 |
| St. Paul | 20.67 | 20.67 | 20.17 | 21.17 |
| Indianapolis | 20.28 | 20.28 | 19.77 | 20.77 |
| Muskegon, Mich. | 20.53 | 20.53 | 20.03 | 21.03 |
| St. Louis | 19.79 | 19.79 | 19.29 | 20.29 |
| From Granite City, delivered to St. Louis | 18.35 | 18.85 | 17.85 | ..... |
| Basing Point: | | | | |
| Birmingham, Ala. | 13.50 | 14.00 | 12.50 | ..... |
| From Birmingham delivered to: | | | | |
| Boston, dock | 19.38 | 19.88 | 18.88 | ..... |
| New York, dock | 19.13 | 19.63 | 18.63 | ..... |
| Philadelphia, dock | 18.88 | 19.38 | 18.38 | ..... |
| Baltimore, dock | 18.63 | 19.13 | 18.13 | ..... |
| Cleveland | 19.64 | 20.14 | 19.14 | ..... |
| Cincinnati | 18.13 | 18.63 | 17.13 | ..... |
| Chicago | 18.16 | 18.66 | 17.66 | ..... |
| St. Louis | 18.35 | 18.85 | 17.85 | ..... |
| Basing Point: | | | | |
| Provo, Utah | ..... | ..... | ..... | ..... |
| From Provo delivered to Pacific Coast | 22.00 | ..... | ..... | ..... |

LOW PHOS.

| | |
|---|---|
| Valley fur. stand. | 25.00 |
| Phila., standard and copper bearings | 23.13 |

GRAY FORGE

| | |
|---|---|
| Valley furnace | 17.25 |
| Pitts., dist. fur. | 17.50 |
| Pittsburgh, del. | 18.13-18.63 |

CHARCOAL

| | |
|---|---|
| Lake Superior, fur. | 20.50 |
| Do. del. Chicago | 23.54 |

SILVERY

Jackson County, O., base: 6% —$21.25; 7—$22.25; 8—$23.25; 9—$24.25; 10—$25.25; 11—$26.75.

BESSEMER FERROSILICON

Jackson County, O., base: 10%—$26.25; 11—$27.75; 12—$29.25; 13—$30.75; 14—$32.25; 15—$33.75; 16—$35.25.

# Bars

**Demand Is Much Lighter — Automotive Needs Bring Most New Business to Mills**

BAR PRICES, PAGE 51

**Pittsburgh**—The base of 1.60c, Pittsburgh, is a fairly definite assurance as the market for carbon bars over at least the next 90 days. A revised list of extras on bars is about to be issued by leading producers, following approval by administrators of the steel code. With the filing of 2.45c base on hot-rolled carbon bars, the former 2.65c, Pittsburgh, base, which applied to the small buyer, has disappeared. Orders for bars generally are on the decline and the only outstanding buyer has been the automotive industry.

**Cleveland**—Commercial steel bars will continue 1.65c as the Cleveland base under the code. However, switching charges to consumers will be added. These charges in numerous instances in the past have been waived. The charge will be 41.8 cents per net ton if the switch is to the same line as that on which the shipment originates. If to an adjoining railroad, without intermediary line, the charge will be 55 cents; and if an intermediary line is used $3.96 per car will be added. Both local and outside producers will be bound to these regulations. Considerable confusion exists in consumers' minds regarding extras, and in the meantime sales are light.

**Chicago**—Soft steel bars now are quoted 1.65c, Chicago, reducing the differential over Pittsburgh base from $2 a ton to $1. Merchant rail steel bars have been advanced $1 a ton to 1.55c. Bar iron continues 1.60c. These quotations are single base prices for third quarter. Fourth quarter prices are expected to be announced soon. Sales and specifications continue light, reflecting uncertainty which recently preceded adoption of the steel code and filing of prices. Shipments against orders are fairly well maintained but backlogs are being reduced.

**Philadelphia** — Commercial steel bar demand was slower the past week, due to confusion attending filing of prices and the revision of certain extras. The 1.60c, Pittsburgh, price is reaffirmed for this quarter and some interests believe that it will be extended for next quarter, although this is not definite.

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In the 12 months ending July, 1933, Portland cement plants in the United States averaged 26.3 per cent of capacity production, compared with 34.2 per cent of capacity for the 12 months ending July, 1932.

## Cold-Finished Orders Up; New Code Prices Approved

Cold Finished Prices, Page 51

**Pittsburgh**—A base price of 1.95c, Pittsburgh, on cold-finished carbon bars has been filed and approved by the Steel code. At the same time, the market on cold-drawn alloy bars is conceded to be 2.95c base, Pittsburgh, or at a 50-cent per ton differential over the newly determined hot-rolled alloy bar base of 2.45c. The cold-finished bar industry was in relatively the best position of any branch of the steel industry so far as the consideration and filing of prices was concerned. Orders show a slight gain and buying is more for production use. Recent orders include tonnages from the Detroit district and heavy releases from several washing machine manufacturers.

## Tin Plate Advanced 40 Cents Per Base Box

Tin Plate Prices, Page 51

**Pittsburgh**—The price of tin plate has been advanced from $4.25 to $4.65 per base box under the steel code. The new price applies on all spot business until a possible revision is filed when usual year-end contracts are renewed around Oct. 1. It does not affect unfilled contracts of important canmakers, which have until Oct. 1 to be completed. The advance, it is said, does not compensate mills for increases in tin, other materials and labor. The price of tin mill black sheets was filed unchanged at 2.50c base, Pittsburgh; and No. 24 unassorted long ternes were named 2.90c, Pittsburgh.

# Plates

**Shipments on Contracts Hold Well but Sales Are Light — Base Price Not Changed**

PLATE PRICES, PAGE 51

**Pittsburgh**—Until the market for fourth quarter is determined, plate mills are accepting business at 1.60c base, Pittsburgh. One barge builder here has unfilled orders for 13 large barges requiring over 3000 ton of plates, although the material has already been contracted. Pittsburgh Plate Glass Co., Pittsburgh, is about to make repairs to a large tank at its Clarksburg, W. Va., plant. The plate market is not immediately promising.

**Cleveland** — Plate mill operations here have been reduced to 40 per cent, with light miscellaneous demand, supported chiefly by brewery requirements. Railroads are ordering little material. Plates remain 1.60c, base, Pittsburgh, under the steel code. This price, as is that of other iron and steel products, is subject to change on ten days' notice, though expected to hold for the remainder of this quarter. Switching charges, frequently waived under past competitive conditions, now apply here, the same as detailed under Cleveland bars.

**Chicago** — In filing a new base price of 1.65c, Chicago, for plates, producers have eliminated the confusion formerly prevailing between prices of this material as produced by plate, sheet and strip mills. The 1.65c price applies on plates ¼-inch thick and heavier, up to and including 48 inches wide, and on material 3/16-inches and heavier for material over 48 inches wide. Floor plates are quoted 3.15c as a separate product instead of merely as an extra over the plate price, as formerly. New plate business continues rather quiet with shipments against old orders steady. Some additional brewery tank demand is appearing with business from oil tanks and railroads generally restricted to small lots.

**Boston**—Plate demand is light, although for bridges and brewery work some fair volume pends, especially the former. All recent business has been done at 1.70c, Coatesville, Pa., with that price to hold during the remainder of the current quarter at least.

**New York** — Plate buying is featureless and prices are unchanged on new tonnage for shipment to Oct. 1.

**Philadelphia** — Plate buying is light, pending clarification of prices over the remainder of the year. The 1.70c, Coatesville, price has been re-

affirmed for the remainder of this quarter. Plate production is fairly maintained at the early August rate.

## Contracts Placed

5200 tons, 36-inch pipe line, Pine Canyon dam, Pasadena, Calif., to Consolidated Steel Corp., Los Angeles.

400 tons, tanks and heads, Centlivre Brewing Co., Ft. Wayne, Ind., to Heil Co., Milwaukee.

## Contracts Pending

7000 tons, 42 to 63-inch Green River water system extension, Tacoma, Wash.; bids not yet called. W. A. Kunigh, superintendent.

6000 tons, 10 destroyers, navy department, for delivery at Boston, Philadelphia, Norfolk, Puget Sound and Mare Island yards; bids Sept. 12.

1200 tons, two destroyers at Mare Island, Calif.; bids in October.

195 tons, cold-rolled sheet steel, Mare Island, Calif.; Youngstown Sheet & Tube Co., Youngstown, O., low.

120 tons, 60-inch welded steel pipe line, Hetch Hetchy project, San Francisco; bids Aug. 31.

Unstated, automobile license plates, state of Washington; bids Aug. 30 at Olympia, Wash.

# Wire

### Current Quotations Hold; Sales Well Diversified

Wire Prices, Page 51

**Pittsburgh**—Pending clarification, the market on wire products continues at $2.10 per keg on nails, 2.10c on plain wire for manufacturing and 3.10c for spring wire. Orders show no increase but buying is still well diversified among the jobbing and general manufacturing trades.

**Cleveland**—Though the Cleveland base price for manufacturers' wire remains 2.10c and nails $2.10, buying appears in abeyance pending further clarification in the minds of consumers regarding details affecting various gages, extras and deliveries. Under the code producers can change their prices on ten days' notice, but this is not expected to be done owing to the confusion which might arise. It is believed price changes will fall into regular quarterly sequence, with announcement ten days before the new quarter.

**Chicago**—Wire prices for the remainder of this quarter are unchanged under figures filed in connection with the new steel code. Wire nails continue $2.15, plain wire 2.15c and wire rods $36. New business has continued to decline slowly while shipments have been well maintained.

**Boston** — Plain wire prices have been reaffirmed for the remainder of the quarter, the $2 Worcester differential, or 2.20c, Worcester base, continuing for the present. Recent business has been done at that price. Drawing operations are easing, due to slower buying and specifying, although the decline has been gradual.

# Railroads

### C. & O. To Place 31,481 Tons; Car Buying on Increase

Track Material Prices, Page 51

Chesapeake & Ohio directors have authorized purchase of 31,481 tons of rails, which it is understood 28,000 tons will be 131-pound sections and 3481 tons in 110-pound sections.

Dominion Steel & Coal Corp. Ltd., Sydney, N. S., has started production of 12,000 tons of steel rails for South African railroads. This will require six weeks activity and the mill then will resume on 50,000 tons of rails for the Canadian National.

With the administration co-ordinator exerting pressure on railroads to replace some obsolete equipment, in anticipation of further improvement in car loadings, car builders are looking hopefully to this fall for at least a moderate improvement in lettings. Incidentally, the suggestion has been made out of Washington that all railroads confine obsolete cars to their own tracks.

Domestic car orders for August involved 202 units, bringing the total for the first eight months up to 1074, as against 387 in the corresponding period of last year, 8965 in the first eight months in 1931 and 35,104 in the first eight months in 1931. Further comparisons follow:

| | 1933 | 1932 | 1931 | 1930 |
|---|---|---|---|---|
| Jan. | 3 | 159 | 100 | 5,072 |
| Feb. | 0 | 35 | 50 | 17,027 |
| March | 5 | 105 | 2,166 | 6,118 |
| April | 50 | 0 | 2,798 | 1,997 |
| May | 8 | 60 | 20 | 1,392 |
| June | 500 | 0 | 1,910 | 998 |
| July | 306 | 25 | 617 | 1,389 |
| Aug. | 202 | 5 | 1,304 | 1,111 |
| 8 Mo. | 1,074 | 389 | 8,965 | 35,104 |
| Sept. | ..... | 1,298 | 703 | 576 |
| Oct. | ..... | 0 | 980 | 4,116 |
| Nov. | ..... | 2 | 35 | 2,621 |
| Dec. | ..... | 50 | 11 | 2,729 |
| Total | ..... | 1,739 | 10,694 | 45,146 |

Railroad tie plates have been named at $38, Pittsburgh, at all eastern basing points and $40, Pacific coast. Track spikes are quoted at 2.40c, all basing points.

Billet quality light rails have been set at $34 a gross ton, Pittsburgh, and rerolled quality rails, made from old rails, rail seconds, rail crops, or off heat and discard steel, at $32, Pittsburgh, Chicago and Birmingham. These prices represent a firming up of previous schedules and a closer adherence to established basing points. New quantity extras have been applied, amounts under 20 tons and to and including five tons, taking $1 extra and amounts under five tons $2 extra.

## Car Orders Placed

Columbus Railway, Power & Light Co., Columbus, O., 20 trackless trolleys, to J. G. Brill Co., Philadelphia.

Godfrey L. Cabot Inc., Boston, five steel bulk commodity cars, to American Car & Foundry Co., New York.

## Car Orders Pending

United States engineer, New Orleans, four 20-ton capacity electrically operated asphalt cars; bids Sept. 11.

# Strip

### Inquiry Shows Hesitation; Deliveries Are Tapering

Strip Prices, Page 51

**Pittsburgh**—Bases of 1.65c, Pittsburgh, on hot-rolled strip and 2.25c, Pittsburgh, on cold-rolled strip have been filed and reported approved under the steel code as the market for third quarter. A determination of the fourth quarter market is to be made soon. New extras on strip steel, making slight revisions in chemical and other extras, involves no significant change in size extras. Demand for strip steel is off, although a few tonnage specifications for September shipment to automobile manufacturers are conspicuously good.

**Cleveland**—Cold-rolled strip continues 2.25c, Cleveland base, and hot-rolled 1.65c, Pittsburgh, under the steel code. While producers now are at liberty to sell for the remainder of the year at these prices if they desire, bookings generally are limited to September. It is pointed out that prices may be changed on ten days' notice, and this provision applying to iron and steel sales generally is expected to provide some incentive for buying, on a rising market.

**Chicago**—Strip steel prices under the new steel code have been reaffirmed for third quarter at 1.75c, Chicago, for hot and 2.25c, Pittsburgh-Cleveland, for cold-rolled. While business is moderately less active, the decrease has been slight in point of shipment, with automotive schedules declining. September ship-

ments to this industry are expected to show a further recession.

**Boston** — Revised extras on cold-rolled strip covering widths and other factors will raise prices for smaller lots, but on general volume 2.45c, Worcester, holds for the remainder of third quarter. Cold-strip producers have materially reduced stocks of hot strip bought at low prices.

**Philadelphia**—Pending full application of price schedules filed under the code, buying of strip was light last week. While there were excellent indications that the base prices of 1.65c and 2.25c, Pittsburgh, would be reaffirmed for the remainder of this quarter, there were revisions in extras which remained in doubt for several days. Strip drawing extras were revised and there were additions to width and tolerance extras.

## Tunnel Takes 2000 Tons Bolts; Current Price Firm

**Bolt, Nut, Rivet Prices, Page 51**

Bolt and nut manufacturers are awaiting definite announcement of prices on steel for fourth quarter before establishing their own quotations for that delivery. Hearings on the nut and bolt code may not be held until October, according to present indications.

Prospective business includes 2000 tons of bolts for a crosstown tunnel in New York, which will require 50,000 tons of cast iron segments. This will be bought direct by the port authority, probably this month.

Consumers of bolts and nuts are buying lightly, August sales being as much as 20 per cent those of July in some instances. Rivet buying was even more restricted. Shipments have been fairly good until near the close of August when a decline was evident. Current prices are unchanged at 73 off for bolts and nuts, some producers accepting specifications at this discount for shipment through Sept. 30. Large rivets are 2.50c, Pittsburgh.

## Billet and Sheet Bar Base Price Unchanged

**Semifinished Prices, Page 52**

A price of $26, Pittsburgh, on carbon billets and sheet bars appears to be slated for definite approval under the steel code. Alloy billets have been filed at $49, Pittsburgh. A price of 1.85c, Pittsburgh, on tube rounds, which involves a 25-cent extra over 1.60c base, Pittsburgh, is understood to be ready for approval. Skelp probably will be approved at 1.60c Pittsburgh; likewise wire rods at $35.

## Drawback for Midvale Co.

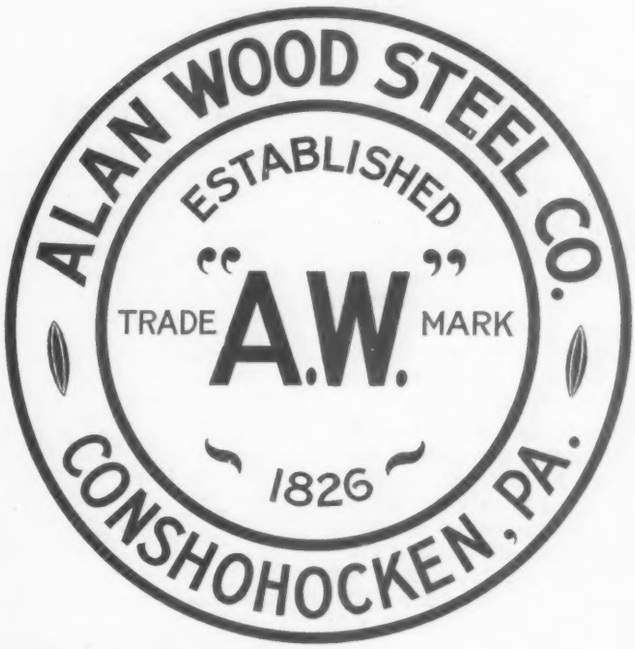
Drawback regulations have been announced by the treasury department, Washington, on steel products manufactured by the Midvale Co., Nicetown, Pa., with the use of imported molybdenum, electrolytic nickel, ferro chromium, manganese ore or concentrates, ferromanganese, titanium, vanadium, tungsten ore or concentrates, and iron.

Prices and exchange conditions give tin plate from the United States an advantage in Japanese buying, British material being considerably higher.


Carbon and Alloy Steels
Blue Annealed Sheets,
Sheared Plates: also Billets.

Rolled Steel Floor Plates
*Diamond, Diamondette and Ribbed Patterns*

Swede Pig Iron
Rainey-Wood Coke

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# Structural Shapes

**Plain Material Remains 1.60c, Pittsburgh, Under Code Schedule — Awards Lighter — 50,000 Tons of Cast Segments Required Soon for New York Tunnel**

STRUCTURAL SHAPE PRICES, PAGE 51

**Pittsburgh**—Structural shapes appear to be definitely slated for approval under the steel code at 1.60c, base, Pittsburgh. Steel sheet piling has been filed under the code at 1.90c base, Pittsburgh. Structural contracts are fewer and inquiry has shown a decline. A 1500-ton structural steel service bridge may come out for figures soon in connection with a roller crest dam on the Ohio river at Montgomery island, near Pittsburgh.

**New York** — Harris Structural Steel Co., New York, booked 1000 tons for the two bascule bridges at Jones Beach Parkway, Long Island. Demand in the East is largely for bridges, an increasing number coming up for bids, while additional contracts have been placed for New York state spans. Plain material is unchanged for the remainder of the quarter at 1.70c, Bethlehem, Pa.

A loan of $37,500,000 from public work funds assures early action on the mid-town vehicular tunnel under the Hudson river between New York and Weehawken, N. J. Contracts are to be awarded within 20 days for 50,000 tons of cast iron tunnel segments and 2000 tons of special tunnel bolts and nuts; and within another 60 or 90 days contracts will be awarded for the construction of the tunnel itself.

**Cleveland**—Many inquiries for small requirements are in the market, but large tonnages are lacking. Public work still is in abeyance. In Cleveland 600 tons for an incinerator are being held up pending decision on type of construction. Plain material continues 1.60c, base, Pittsburgh, for the remainder of this quarter.

**Chicago** — Structural shape inquiries and awards are heavier, new work being headed by Mississippi river lock and dam construction on which bids close this month. Nearly 10,000 tons of piling will be required in addition to a large tonnage of reinforcing bars, shapes and castings. Other pending work includes 2450 tons for highway bridges and dam gates in Louisiana; 2500 tons for a Peoria, Ill., distillery; 800 tons for a Peoria brewery, and 700 tons for a Joliet bridge. Missouri is expected to inquire for 1500 tons for highway bridges.

**Boston**—The McClintic-Marshall Corp. was low on the steel for the 1850-ton bridge superstructure at Dover, N. H., with a bid of 4.77c a pound in place; but due to a lower bid on the flooring, Lackawanna Steel Construction Corp., Buffalo, was low on the total contract, although bidding 4.85c on the steel in place. For the steel the McClintic-Marshall Corp.'s bid was $176,490, and Lackawanna's $179,450, the latter being low on the total contract, $228,050 against $237,090.

**Philadelphia**—Shape demand is momentarily at a standstill, with little in immediate sight. The reaffirmed 1.70c, Bethlehem, Pa., price under the code may be extended for fourth quarter.

## Contracts Placed

1850 tons, toll bridge, Dover-Newington, N. H., to Lackawanna Steel Construction Corp., Buffalo.

1000 tons, two bascule bridges, Jones Beach Parkway, Long Island, N. Y., to Harris Structural Steel Co., Plainfield, N. J.; Frederick Snare Corp., New York, general contractor.

680 tons, state hospital, Mount Morris, N. Y., to American Bridge Co., Pittsburgh; through J. Weinstein & Rubin Corp.

520 tons, relief and Sulphur river bridges, Franklin-Red River counties, Texas, to McClintic-Marshall Corp., Bethlehem, Pa.; Thomas & Ratliff, Rogers, Tex., general contractors.

500 tons, Commercial Solvents Co. warehouse, Terre Haute, Ind., to Mississippi Valley Structural Steel Co., Decatur, Ill.

460 tons, viaduct repairs, Pittsburgh & West Virginia railroad, Pittsburgh, to Fort Pitt Bridge Works, Pittsburgh.

450 tons, Roanoke river bridge, South Hills, Va., to Pittsburgh-Des Moines Steel Co., Pittsburgh.

410 tons, buildings, American Medicinal Spirits Co., Louisville, Ky., to Louisville Bridge & Iron Co., Louisville.

400 tons, bridge, Clark county, Iowa, to Pittsburgh-Des Moines Steel Co., Des Moines, Iowa.

350 tons, building, Berghoff Brewing Co., Ft. Wayne, Ind., to Whitehead & Kales Co., Detroit.

256 tons, Sycamore creek bridges, Kinney-Val Verde counties, Texas, to Alamo Iron Works, San Antonio, Tex.; through Luther A. Turner, Fort Worth.

250 tons, office and display building, Chrysler Corp., Detroit, to Whitehead & Kales Co., Detroit.

230 tons, state highway bridge, Sullivan county, New York, to National Bridge Works, Long Island City N. Y.; through Intercounty Construction Corp.

220 tons, building, J. S. Finch Co., Schenley, Pa., to Levinson Steel Co., Pittsburgh.

157 tons, piling, lighthouse crib, Frankfort, Mich., to Inland Steel Co., Chicago.

150 tons, state highway bridge, Collingsville, Tex., to North Texas Iron & Steel Co., Fort Worth, Tex.

100 tons, highway bridge, Avoca-Wallace-Cohocton section, Steuben county, New York, to Lackawanna Steel Construction Corp., Buffalo; Cold Spring Construction Co. Inc., Akron, N. Y., general contractor.

100 tons, addition to Walla Walla, Wash., penitentiary, to Union Iron Works, Spokane.

100 tons, Marshfield, Oreg., postoffice, to unnamed interests; K. E. Parker, San Francisco, general contractor.

## Shape Awards Compared

| | Tons |
|---|---|
| Week ended Sept. 2 | 8,083 |
| Week ended Aug. 26 | 5,082 |
| Week ended Aug. 19 | 9,296 |
| This week in 1932 | 25,947 |
| Weekly average, 1932 | 14,285 |
| Weekly average, 1933 | 14,225 |
| Weekly average, Aug. | 6,982 |
| Total to date, 1932 | 570,170 |
| Total to date, 1933 | 512,120 |

## Contracts Pending

12,375 tons, Grand Island bridges, Erie and Niagara counties, New York; bids Sept. 14.

10,000 tons, piling, locks and dams, Nos. 4, 5 and 15 Mississippi river; bids close Sept. 22 on No. 4; Sept. 29 on Nos. 5 and 15.

2500 tons, distillery, Peoria, Ill., for Hiram Walker & Sons Inc., Detroit.

2450 tons, highway bridges and dam gates, Louisiana.

1500 tons, highway bridges, Missouri; bids expected to be asked shortly.

1500 tons, service bridge for proposed roller crest dam, Montgomery island, Ohio river, Pittsburgh district. Plans and specifications expected to be presented to chief of engineers, Washington, soon.

1500 tons, I-beams, channels and angles, 10 destroyers, navy department.

1100 tons, steel dam for Rio Grande conservancy district, Albuquerque, N. Mex.

932 tons, bridge over Missouri river, Roosevelt and Richland counties, Montana; bids opened.

800 tons, building, Marquette Brewing Co., Peoria, Ill.

713 tons, state bridge, Grant county, Oklahoma; bids Sept. 5.

700 tons, Ruby street bridge, Joliet, Ill.
680 tons, bridge over Russian river, Mendocino county, Calif.; bids Sept. 15.
670 tons, widening, Marshall street viaduct, Richmond, Va.; bids Sept. 6. Also requires 50 tons of reinforcing bars.
350 tons, miscellaneous work at Pennsylvania railroad station, Philadelphia; bids Sept. 2.
612 tons, state bridge, Rappahannock river, Port Royal, Va.; J. S. Bowers, Whiteville, N. C., low, $144,893.50, bids Aug. 24.
400 tons, for two destroyers at Mare Island, Calif.; bids in October.
300 tons, highway bridge, Norfolk, Nebr.
220 tons, state highway bridges, Mississippi; bids Sept. 12.
200 tons, addition to Brooklyn Borough Gas Co., Coney Island, N. Y.
185 tons, bridge, Loveland, Colo., for state highway department.
145 tons, bridge over Feliz creek, Mendocino county, Calif.; bids Sept. 13.
133 tons, state bridge, Latimer county, Oklahoma; bids Sept. 5.
123 tons, bridge over North Fork of Feather river, Plumas county, Calif.; bids Sept. 14.
106 tons, bridge in Pend Oreille National Forest, Idaho; bids Sept. 7.

# Concrete Bars

**Prices Advanced in Many Districts—Awards Increase With 3800 Tons Placed for Boulder Dam—Heavier Mesh Requirements Develop In Eastern Market**

REINFORCING BAR PRICES, PAGE 51

**Pittsburgh**—Reinforcing bar producers have adopted a base of 1.80c, Pittsburgh, as the market for the remainder of this quarter. Extras are to be observed in accordance with the present card, with the exception that a new cutting extra has been adopted as follows: Cutting to length 60 inches and over now takes an extra of 10 cents, except—1. Providing shipment of shorts not exceeding 10 per cent of the total quantity ordered is permitted or—2. Provided leeway in length is permitted as follows: 5 to 30-foot lengths, 2-foot leeway; 30 to 40-foot lengths, 3-foot leeway; and over 40 feet, 5-foot leeway. This cutting extra applies similarly to all basing points, although the base price is now 1.85c, Youngstown, O., Cleveland and Buffalo. Gulf ports base under the steel code is 2.20c, and Pacific coast ports 2.35c.

**Cleveland**—Concrete bar purchases are limited to small lots, with tonnage light. The state has awarded general contracts for road and bridge work requiring 260 tons of bars and mesh, but material has not been purchased. Higher prices now are in effect here under the steel code.

**Chicago**—Higher prices on billet and rail steel reinforcing bars have been filed, the market now being 1.95c for cut lengths of billet bars and 1.80c for rail steel. Mill lengths of billet bars are 1.85c. These figures compare with 1.75c for billets and 1.50c for rails formerly. Business continues slow in private work, with fairly large tonnages in prospect for state and federal construction.

**Boston**—Concrete reinforcing bar awards are slightly heavier, a bridge and hospital building accounting for 525 tons. Both billet and rail steel bars have been advanced, cut lengths of the former to 1.95c, Buffalo, and the latter to 1.80c, the rail steel bar advance being the greater.

**New York**—Cut lengths of billet steel concrete reinforcing bars have been advanced $3 a ton to 1.90c, Pittsburgh, and rail steel bars are $5 a ton higher at 1.75c, Pittsburgh. The Buffalo base price is $1 a ton higher than Pittsburgh under the new plan. Mesh buying for highways continues heavy, about 1500 tons being placed this week.

**Philadelphia**—Billet steel bars have been advanced $3 a ton to 1.90c, Pittsburgh, for cut lengths, with an advance of $4 at all other basing points, or 1.95c. Rail steel bars have been advanced $5 at Pittsburgh, to 1.75c, and $6 at all other basing points, 1.80c. Buying is light.

## Concrete Awards Compared

| | Tons |
|---|---|
| Week ended Sept. 2 | 6,735 |
| Week ended Aug. 26 | 6,500 |
| Week ended Aug. 19 | 3,708 |
| This week, 1932 | 4,571 |
| Weekly average, 1932 | 3,920 |
| Weekly average, 1933 | 3,433 |
| Weekly average, Aug. | 3,074 |
| Total to date, 1932 | 148,181 |
| Total to date, 1933 | 123,604 |

## Contracts Placed

3800 tons, bureau of reclamation, Denver, Boulder canyon project, proposal A-3270-A, Aug. 4, divided between Pacific Coast Steel Corp., San Francisco, bidding $81,610.80, f.o.b. Los Angeles, on schedule 2, and Colorado Fuel & Iron Products Co., bidding $22,798.86, f.o.b. Minnequa, Colo., on schedule 1.
425 tons, mesh, Lyon Mountain-Dannemora highway 8357, Clinton county, New York, to American Steel & Wire Co., Pittsburgh; Whitmore, Rauber & Vicinius Inc., Rochester, N. Y., general contractor.
340 tons, kitchen building, City hospital, Boston, to Barker Steel Co., Boston; John Bowen Co. Inc., Boston, general contractor.
300 tons, brewery building, Hoffman Beverage Co., Newark, N. J., to Jones & Laughlin Steel Corp., Pittsburgh.
300 tons, grain elevator, Albert Schwill & Co., Chicago, to Inland Steel Co., Chicago.
275 tons, mesh, highway, Central Bridge - Quaker street sections, Schenectady and Schoharie counties, New York, to Kalman Steel Corp., Bethlehem, Pa.; Madison Construction Co., Solsville, N. Y., general contractor.
225 tons, mesh, highway, Warwick-Greenwood Lake highway 447, Orange county, New York, to American Steel & Wire Co., Pittsburgh; Lane Construction Co., Meriden, Conn., general contractor.
225 tons, Relief and Sulphur river bridges, Franklin-Red River counties, Texas, to Concrete Engineering Co.; Thomas & Ratliff, Rogers, Tex., general contractors.
190 tons, Idaho highway projects, to unnamed interests.
150 tons, three State of Washington building additions, to Pacific Coast Steel Corp., Seattle; Truscon Steel Co., Portland, Oreg., and Consolidated Steel Co., San Francisco.
130 tons, two bascule bridges, Jones Beach Parkway, Long Island, N. Y., to Kalman Steel Corp., Bethlehem, Pa.; Frederick Snare Corp., New York, general contractor.
125 tons, grade crossing, Cheektowaga, N. Y., to Kalman Steel Corp., Bethlehem, Pa.; through James S. McCormack, Easton, Pa.
125 tons, mesh, highway, Old Northern Turnpike-White Creek-County line, Rennsselaer and Washington counties, New York, to Kalman Steel Corp., Bethlehem, Pa.; Colline Bros., Mechanicville, N. Y., general contractor.
100 tons, factory, Ehret Magnesia Mfg. Co., Port Kennedy, Pa., to Kalman Steel Corp.; through Robert E. Lamb, Philadelphia.

## Contracts Pending

1600 tons, substructures and approaches Grand Island bridges Erie and Niagara counties, New York; bids Sept. 14.
350 tons, United States engineer, first district, New York; bids in.
285 tons, state bridges and highways, South Carolina; bids Sept. 12.
240 tons, highway work in 16 coun-

ties, California; bids Sept. 15.
192 tons, highway work in Los Angeles county, California; bids Sept. 15.
150 tons, bridge over Feather river, Butte county, Calif.; bids Sept. 13.
138 tons, conduit on Elm avenue, Los Angeles county, Calif.; bids Sept. 11.
107 tons, bridge over Russian river, Mendocino county, Calif.; bids Sept. 13.
104 tons, bridge over Missouri river, Roosevelt and Richland counties, Montana; bids opened.
100 tons, bridge, Rappahannock river, Port Royal, Va.; J. S. Bowers, Whiteville, N. C., low; bids Aug. 24.

# Pipe

**Few Price Changes Under Code —Sales Are Light in Absence of Action on Public Works Projects**

PIPE PRICES, PAGE 51

**Pittsburgh**—Discounts in the lists of July 1 on standard pipe, line pipe and oil country tubular goods have been the prices filed by producers of these products as the market to be observed under the steel industry's code. These have been approved. A revision is understood to have been made in the discounts affecting boiler tubes, from the last change which was under date of July 10. No report has been heard as yet on the expected approval of prices submitted on mechanical tubing and electrical conduit.

**Chicago**—No changes have been announced in cast iron pipe prices, but in view of increases in wages and in pig iron prices some revisions in pipe quotations are anticipated. The market recently has continued slow with delays still encountered in granting of federal loans for proposed construction by various municipalities. Eau Claire, Wis., tentatively has placed 1500 tons of 8 to 30-inch cast pipe, starting of construction awaiting the approval of a federal loan.

**Boston**—Cast pipe buying is in small lots, Brookline and Brockton, Mass., placing an aggregate of 375 tons with two foundries. Brown-Wales Co., Boston, is low on 6170 feet seamless steel tubing for the Portsmouth, N. H., navy yard; bids Aug. 22.

**New York**—For state work and a Westchester county, New York, sewer about 800 tons of cast pipe has been placed, the remainder of buying being limited to small fill-in tonnages. Pending requirements include 400 tons for New York city, several hundred tons for state highway work, and a small inquiry for 8-inch by a New Jersey utility.

Allegheny Steel Co., Allegheny, Pa., has been awarded corrosion resisting pipe and tubing for delivery to several naval yards at $39,812.63; bids Aug. 22.

**Birmingham, Ala.**—New business is lagging, with base prices firm. Some disappointment is noted as to anticipated business by reason of delay in federal financing.

## Cast Pipe Placed

10,680 feet, 6 to 12-inch, Fond du Lac, Wis., to Central Foundry Co., Birmingham, Ala.
1850 tons, 6 to 8-inch class 150, Oakland, Calif., to United States Pipe & Foundry Co., Burlington, N. J.
1500 tons, 8 to 30-inch, class C pipe, to James B. Clow & Sons Co., Chicago.
400 tons, 18 and 20-inch, sewers, Westchester county, New York, to Donaldson Iron Works, Emaus, Pa.
350 tons, Hudson river state hospital, Poughkeepsie, N. Y., to Donaldson Iron Works, Emaus, Pa.
325 tons, 6, 10 and 18-inch monocast and accessories, for McNeil Island, Wash., federal prison, to American Cast Iron Pipe Co., Birmingham, Ala.
270 tons, Brookline, Mass., to Warren Pipe Co., Everett, Mass.
100 tons, Brockton, Mass., to Donaldson Iron Works, Emaus, Pa.
100 tons water pipe specials, Washington, to Lynchburg Foundry Co., Lynchburg, Va.

## Cast Pipe Pending

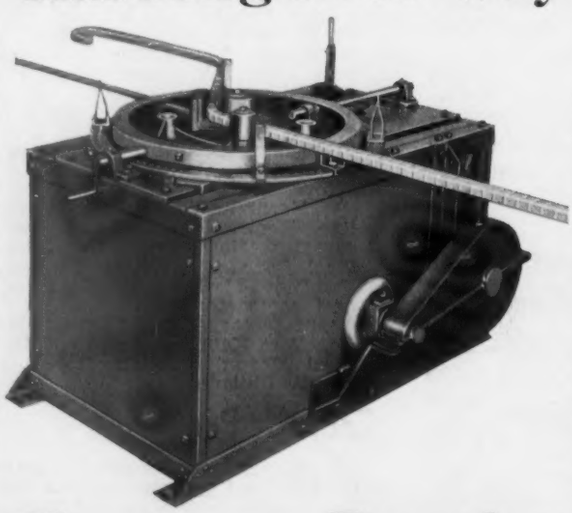
600 tons, 6 and 8-inch, Eau Claire, Wisc.; bids Sept. 12.
400 tons, 6, 8 and 12-inch, New York city.
350 tons, 4 and 6-inch class 150, Victorville, Calif.; bids soon.
335 tons, 4 and 6-inch, Moorefield, W. Va.; bids soon.
315 tons, 4 to 10-inch class 150, Whittier, Calif.; bids soon.
Unstated tonnage, 9270 feet 16-inch, class B, for Milwaukee Park Commission, Milwaukee; bids Sept. 5.

## Steel Pipe Pending

Unstated tonnage, welded steel pipe, navy, Mare Island, Calif., Laclede Tube Co., St. Louis, low, $5793.60, delivered; $4757.92, f.o.b. work. Bids Aug. 22.


# Kardong Four-way Bender

## Model D-2



The Model D-2 Kardong Four-way Bender was designed because of the popular demand for this type of Bender.
In the bending of large bars they do not have to be turned over to make the reverse second bends and in the 180 degree hook bars, after making the first hook the bending member is in position to make second hook by just switching resistance roller to opposite side.
The resistance roller plates are adjustable. The same construction is carried thru on this machine as in all of our benders and is guaranteed to give absolute satisfaction. Ask for catalogue of our complete line of reinforcing steel bar benders.

# Kardong Brothers, Inc.

**Minneapolis, Minn.**


## Steel Workers' Weekly Earnings Average $15.31

Average weekly earnings of unskilled male labor in the iron and steel industry in June, 1933, were $15.31, compared with $13.41 in May, according to the National Industrial Conference board, New York. In 1926 the average weekly earnings of unskilled steel workers were $27.15. Average hours worked per week in June, 1933, were 47, compared with 41.1 in May and an average of 55.1 for all of 1926.

The Conference board reports wage

earners' living costs in July rose 3.3 per cent over June, compared with a rise of 1 per cent in June over May and 0.8 per cent in May over April. But July living costs still were 2.3 per cent lower than in July, 1932, and 24.8 per cent below July, 1929.

## Financial News of Steel Industry

Spang, Chalfant & Co. Inc., Pittsburgh, and subsidiaries, report independently of National Supply Co. a net loss of $706,294 for the first half compared with a net loss of $577,116 in the first half of 1932. For the second quarter of 1933, net loss was $414,142 after taxes and charges, comparing with net loss of $292,152 in the preceding quarter.

□ □ □

Otis Steel Co., Cleveland, defaulted bond interest due Sept. 1 in order to conserve cash.

□ □ □

Mesta Machine Co., Pittsbnrgh, raised its dividend 10 cents a share by declaring a 25-cent distribution on the common stock payable Oct. 2 to record of Sept. 16. Regular quarterly dividend of $1.50 on the preferred was declared payable as of the same dates.

□ □ □

Dominion Steel & Coal Corp., Montreal, Que., reports a deficit of $492,078 for the fiscal year 1932. Its operating profit was $112,987, compared with a profit of $813,736 in 1931. It has called a special meeting of holders of its debentures to discuss the company's inability to meet interest charges. Last March the company took advantage of the period of grace allowed in the trust deed of its debentures, of which $13,499,995 was outstanding at the end of 1932.

## Taking Less Wabana Ore

While German blast furnaces are under contract to take about 700,000 tons of Wabana iron ore per year, shipments this year are only 300,000 tons, according to Sir Newton Moore, president, Dominion Steel & Coal Co., Sydney, N. S. In consideration of being allowed to reduce the movement during the depression, Germany will make up the tonnage later. Sir Newton denies reports that negotiations are on for the barter of Wabana ore for British coal.

### Oil Burner Show to Phila.

Directors of the American Oil Burner association have voted to hold the eleventh national oil burner show and convention in Philadelphia in 1934 at a date to be decided later.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# Pig Iron

**Advance of 50 Cents to $1 a Ton Now General—Some Makers Booking for Fourth Quarter**

PIG IRON PRICES, PAGE 52

**Pittsburgh**—Effective Aug. 29, pig iron producers filed prices under the steel code representing a $1 a ton advance on both Neville Island, Pa., and valley bases. The prices are effective on all new business after that date. The advance places foundry, malleable and gray forge on an $18, Pittsburgh furnace base. Basic is now $17.50, and bessemer $18.50, all Neville Island, Pa., base. Valley prices, including Sharpsville, Pa., are in each case 50 cents a ton less. No heavy buying has tested these markets as yet.

**Cleveland**—Pig iron prices to apply under the code for the remainder of this quarter for shipment in this district have been advanced $1 a ton to $17.50, base, Cleveland furnace. An increase of $1 a ton in the valley also brings the base up to $17.50 for shipment in that district. At Toledo, O., an advance of 50 cents brings the price up to $17.50 for that district. Instead of selling the higher silicon iron as No. 2X and No. 1X, furnaces no longer recognize these classifications; all differentials are 25 cents for each 0.25 points of silicon above 2.25. August shipments from lake furnaces were approximately 30 per cent above the July total, and the movement is continuing heavy, though new sales are light.

**Chicago** — Pig iron prices have been advanced 50 cents a ton for September shipments to $17.50, furnace, for No. 2 foundry and malleable. This price also will apply on fourth quarter business, although sellers are permitted to revise quotations ten days after filing such intentions with the institute, and a further advance is anticipated sometime within the next three months. Since the formal announcement of price changes may be deferred until the effective date, consumers have the incentive to place business in anticipation of future advances and some improvement in sales is anticipated early this month. Most users have covered requirements over the balance of this quarter and in some cases have sufficient iron placed to accommodate them during the remainder of the year.

**Boston**—Leading domestic sellers are holding firm at $18, Everett, base, plus freight, for delivery in New England, there being a mild flurry in buying previous to the $1 advance. Sharp reductions have been made in freight rates by the New York, New Haven & Hartford railroad from Everett to points on that line, including many of the important consuming points. Rates have been reduced more than half in many instances.

**New York** — Sellers here have opened books for the remainder of the year at the recently announced price advances. The market is quiet.

A sale of 12,000 tons of pig iron in New England territory for delivery through the fourth quarter is confirmed by one seller, who withholds the buyer's name.

**Philadelphia**—Pig iron sellers are opening their books for fourth quarter, with the largest individual inquiry pending for that position involving 10,000 tons of basic for an eastern Pennsylvania consumer, previously noted as in the market. The recent advances in the East of $1 a ton on foundry, malleable and bessemer and of 75 cents on basic are expected to be applied on shipments over the remainder of the year. Pig iron shipments against old contracts are tapering off slightly.

**Buffalo** — New Buffalo pig iron prices are $17.50 for No. 2 foundry, with 25-cent differentials for each 0.25 points additional silicon content. Malleable is $18. Consumers appear to be waiting acceptance of the new prices by the industry's code authorities before committing themselves.

**Cincinnati** — Prices on southern pig iron were increased in this district, following closely on the fixing of a base of $17.50, Hamilton furnace, on northern iron, or $18.63, delivered, Cincinnati. Sales include 1200 tons of northern iron and about 400 tons of southern.

**St. Louis**—New purchasing continues relatively light. The latest advance of 50 cents per ton has further stimulated specifications on iron previously acquired, and little tonnage under contract remains to be ordered out. August shipments about equal those of July.

**Birmingham, Ala.** — While the Birmingham base price of pig iron has been advanced 50 cents a ton to $13.50, under the code the price may be in-


Lectromelt

direct arc melting and refining furnaces for tool and alloy steel ingot production, for steel castings manufacture, . . . . and the making of plain steels as are used in the Lectromelt billet size ingot process for reinforcing bars . . . . have now been made even more rapid and economic by the new patent . . .

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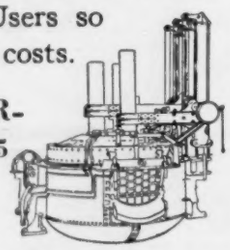

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*and associate company*

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*SIZES - - - 50 Pounds to 50 Tons Capacity*

creased at any time on 10 days' notice, and it is intimated here that it actually will be raised again before the close of the year. Melters are covering only immediate requirements.

**Toronto, Ont.**—Merchant pig iron sales showed further improvement during the week with the total close to 600 tons. Melters are ordering chiefly in single car lots, with occasional purchases of 100 tons. The daily melt is holding around 25 per cent. Prices are firm.

# Coke

### Light Buying Is General; Shipments Above Year Ago

**Coke Prices, Page 52**

Large unfilled orders placed during the recent coal strike restrict buying in beehive coke and the market is not tested. Connellsville furnace coke is quoted at about $2.50, Connellsville ovens, though some producers claim they are obtaining $2.75, ovens. Foundry coke is in smaller demand and as high as $3.25 has been done, though some producers would sell at $3. Premium brands are quiet at $4.50, ovens.

Foundry coke shipments in the Chicago district have been heavy in anticipation of the advance of 50 cents. This brought the market to $8 for outside delivery and $8.75 for Chicago delivery. Shipments there are heavier than a year ago.

In the St. Louis district shipments have showed no seasonal contraction and volume is heavier than a year ago and August promises to be heavier than July.

## Ore Shipments Increased; Industry's Code Ready

**Iron Ore Prices, Page 52**

**Cleveland**—Lake Superior iron ore shipments for August totaled 5,100,702 tons, largest since October, 1930. Last year the August shipments were 721,000 tons. The gain over the July tonnage this year is 1,669,917 tons, or 48 per cent. The entire movement this season to Sept. 1 is 10,795,398 tons, compared with 1,749,927 tons last year, and 3,500,000 tons for the year 1932.

A tentative draft of a code for the iron ore industry has been prepared, and probably will be presented to the NRA administration this week. Consumers generally have covered their ore requirements for this year. The industry raised wages a month ago. Coincident with the preparation of their code, members of the Lake Carriers' association have raised wages 10 per cent.

## Soviet Stacks Top Rating

Of the 91 blast furnaces operating in the USSR in June, 34 exceeded their rating, according to the USSR chamber of commerce. June output of pig iron in the USSR was 215,000 tons, compared with 173,000 tons in June, 1932. Output of steel in June was 191,000 tons, against 161,000 tons in June, 1932.

### Soviet Starts Blooming Mill

The first steel ingots have been passed through the blooming mill of the Soviet steelworks at Magnitogorsk, according to the economic bul-

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3953 BELLEVUE AVENUE, DETROIT, MICHIGAN

letin of the USSR chamber of commerce, dated Aug. 2.

# Equipment

### August Business Seems Best For Any Month This Year

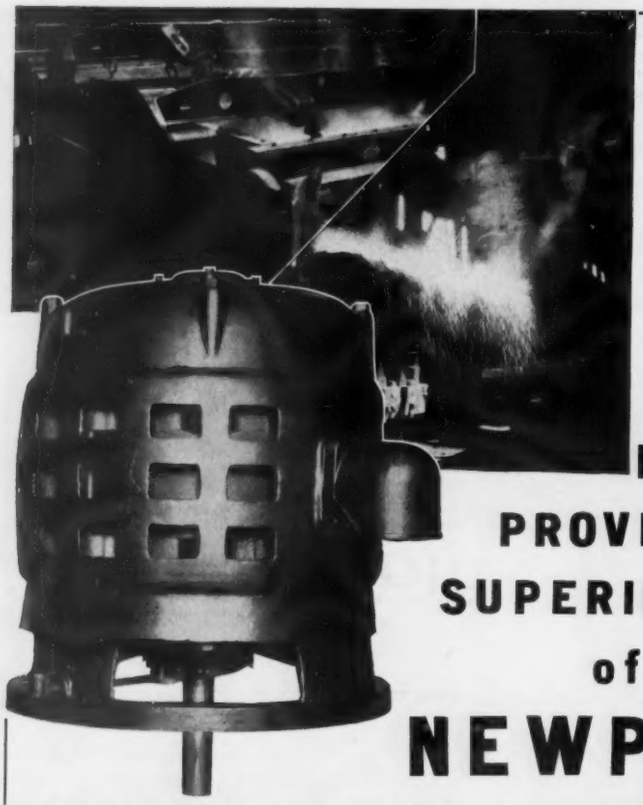
**Chicago** — Machinery and equipment sales were more active the past week and inquiries also were more numerous. A fair volume of machine tool business has been received recently, making August sales for some interests the highest for any month this year. Inland Steel Co. has purchased about a dozen tools for a new maintenance shop, including lathes and grinders in addition to a drill, bandsaw, air compressor and roll grinder. Railroads buy sparingly, with new inquiries including six arc welders for the Illinois Central and a drill grinder for the Milwaukee road. Pennsylvania railroad has an inquiry out for a number of tools for the Altoona, Pa., shops, but the business is expected to go to eastern interests. A fair volume of business is appearing from miscellaneous industries, with used machinery occasionally in better demand than new. Although some prices are being advanced, only a moderate stimulating effect upon sales is noted in the present market.

**New York**—While equipment buying is dull, the usual midsummer slump is not as pronounced as in recent years and inquiry already figured is encouraging, some of which is expected to develop into business in the early fall. James M. Motley & Co. Inc., New York, is low on two lathes for the San Pedro, Calif., navy yard shops. Used machinery of the heavier type is moving well, such a sale recently including a press weighing 575 tons by a Buffalo district shop to a grave vault manufacturing company.

**Boston**—Little new business has developed during the last two weeks, but the total volume for last month compares favorably with that of July with several shops, the latter month being the best in a long period. The deferred summer slump, however, appears to have arrived for most plants, although considerable business is being figured. Tentative code requirements will require machinery builders to list the selling price of various machinery models by serial number and provide for the sale of such models at firm and listed prices. Prospects for some volume with Russia are favorable as the Soviet buying organization appears about to close on considerable equipment for two aircraft factories.

**Cleveland**—Although seasonal factors and NRA uncertainty have made their influence felt in a smaller volume of business, August totals appear to stand near the year's top. Purchases are made quickly and for immediate delivery, seldom more than one or two items figuring in a deal. The price trend is upward with the new prices becoming effective upon notice.

Shipments of domestic water pumps shipped by manufacturers in June were 39,869 units, compared with 31,251 units in May and 24,459 units in June, 1932. First six months of 1933 shipments were 150,273 units compared with 128,172 units in first half of 1932.

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# Scrap

**Buying Lull Brings Price Weakness — Eastern Tonnage Taken at $1.50 Decline**

**Pittsburgh** — Definitely weaker, owing to lack of sales in this district, the quotation on No. 1 heavy melting steel has been reduced 50 cents to $13 to $13.50 because of the ease with which brokers are able to fill their requirements at $12.50 to $12.75. Suspension of shipments, however, is the order of the day. One important producer in shutting off shipments last week, withdrew from the market for September. A smaller mill has no interest in heavy melting steel for the remainder of this year. If able to find a mill buyer, dealers unquestionably would sell here for a top of $13.50, or even less. This weakness has spread to other grades.

**Cleveland**—Buying is absent from the steel and iron scrap market,

## IRON AND STEEL SCRAP PRICES

*Corrected to Friday night. Gross tons delivered to consumers, except where otherwise stated*

**HEAVY MELTING STEEL**

| | |
|---|---|
| Birmingham | 9.50 to 10.50 |
| Boston, dealers | 7.25 to 7.50 |
| Buffalo, No. 1 | 11.00 to 11.50 |
| Buffalo, No. 2 | 10.00 to 10.50 |
| Chicago | 9.50 to 10.00 |
| Cleve., No. 1 | 10.50 to 11.00 |
| Cleve., No. 2 | 10.00 to 10.50 |
| Det., No. 1 | 9.00 to 9.50 |
| Det., No. 2 | 8.00 to 8.50 |
| E. Pa. | 10.50 |
| E. Pa., No. 2 | 9.50 |
| Federal, Ill. | 8.75 to 9.25 |
| Granite City, Ill. | 8.25 to 8.75 |
| N. Y., deal. R. R. | 8.00 to 8.50 |
| N. Y., deal. No. 2 | 7.00 |
| N. Y. deal. yd. | 5.50 to 6.00 |
| Pitts., No. 1 | 13.00 to 13.50 |
| St. L. No. 1 del. | 9.75 to 10.25 |
| Valleys, No. 1 | 13.00 to 13.50 |

**COMPRESSED SHEETS**

| | |
|---|---|
| Buffalo, dealers | 9.50 to 10.50 |
| Chi. (Factory) | 8.00 to 8.50 |
| Cleveland | 10.00 to 10.50 |
| Detroit | 9.00 to 9.50 |
| E. Pa. new mat. | 11.00 to 11.50 |
| Pittsburgh | 12.75 to 13.25 |
| Valleys | 12.50 to 13.00 |

**BUNDLED SHEETS**

| | |
|---|---|
| Buffalo | 5.50 to 6.00 |
| Cincinnati, del. | 6.00 to 6.50 |
| Cleveland | 8.00 to 8.50 |
| Eastern Pa. | 9.00 to 10.00 |
| Pittsburgh | 11.75 to 12.25 |
| St. Louis | 6.00 to 6.50 |

**SHEET CLIPPINGS LOOSE**

| | |
|---|---|
| Chicago | 5.00 to 5.50 |
| Cincinnati | 5.00 to 5.50 |
| Detroit | 6.00 to 6.50 |
| St. Louis | 5.50 to 6.00 |

**STEEL RAILS SHORT**

| | |
|---|---|
| Birmingham | 11.50 to 12.00 |
| Boston, dealers | 7.00 to 7.25 |
| Buffalo | 12.00 to 12.50 |
| Chicago (3 ft.) | 11.50 to 12.00 |
| Chicago (2 ft.) | 12.00 to 12.50 |
| Cincinnati, del. | 12.00 to 12.50 |
| Detroit | 11.00 to 11.50 |
| Pitts. (open-hearth, 3 ft. and less) | 15.25 to 15.75 |
| St. Louis | 11.50 to 12.00 |

**STOVE PLATE**

| | |
|---|---|
| Birmingham | 7.00 to 8.00 |
| Boston, dealers | 4.50 to 4.75 |
| Buffalo | 9.00 to 9.50 |
| Chicago, net | 7.50 to 8.00 |
| Cinci., deal. | 7.00 to 7.50 |
| Detroit, net | 4.50 to 5.00 |
| Eastern Pa. | 9.50 |
| N. Y. deal. Fdry. | 6.00 |
| St. Louis | 7.00 to 7.50 |

**COUPLERS, SPRINGS**

| | |
|---|---|
| Buffalo | 11.50 to 12.00 |
| Chicago | 10.50 to 11.00 |
| Eastern Pa. | 14.00 to 15.00 |
| Pittsburgh | 14.75 to 15.25 |
| St. Louis | 10.00 to 10.50 |

**ANGLE BARS—STEEL**

| | |
|---|---|
| Chicago | 11.00 to 11.50 |
| St. Louis | 10.00 to 10.50 |

**LOW PHOSPHORUS**

| | |
|---|---|
| Buffalo, billets and bloom crops | 11.50 to 12.50 |
| Cleveland bil. and bloom crops | 12.50 to 13.50 |
| Eastern Pa. | 14.00 to 15.00 |
| Pittsburgh billet bloom crops | 15.50 to 16.00 |
| Pitts., sheet bar crops | 15.50 to 16.00 |

**FROGS, SWITCHES**

| | |
|---|---|
| Chicago | 9.50 to 10.00 |
| St. Louis | 10.00 to 10.50 |

**SHOVELING STEEL**

| | |
|---|---|
| Chicago | 9.50 to 10.00 |
| Cleveland | 6.75 to 7.00 |
| St. Louis | 9.00 to 9.50 |

**RAILROAD WROUGHT**

| | |
|---|---|
| Birmingham | 8.00 to 8.25 |
| Boston, dealers | 2.00 to 2.50 |
| Buffalo, No. 1 | 7.00 to 8.00 |
| Buffalo, No. 2 | 11.00 to 11.50 |
| Chi., No. 1, net | 8.00 to 8.50 |
| Chi., No. 2 | 9.50 to 10.00 |
| Cinci., No. 2 | 9.50 to 10.00 |
| Eastern Pa. | 13.00 |
| N. Y., No. 1 deal. | 8.00 to 8.50 |
| Pitts., No. 1 | 13.00 to 13.50 |
| St. Louis, No. 1 | 7.00 to 7.50 |
| St. Louis, No. 2 | 8.75 to 9.25 |

**SPECIFICATION PIPE**

| | |
|---|---|
| Boston | 4.00 to 4.50 |
| Eastern Pa. | 9.50 to 10.00 |
| N. Y., deal. | 5.50 to 6.00 |

**BUSHELING**

| | |
|---|---|
| Buffalo, No. 1 | 9.50 to 10.50 |
| Chicago, No. 1 | 8.00 to 8.50 |
| Cinci., No. 1 deal. | 7.00 to 7.50 |
| Cinci., No. 2 | 3.50 to 4.00 |
| Cleve., No. 2 | 8.00 to 8.25 |
| Det., No. 1 new | 7.75 to 8.25 |
| St. Louis, No. 1 | 6.50 to 7.00 |
| Val. new No. 1 | 12.50 to 13.00 |

**MACHINE TURNINGS**

| | |
|---|---|
| Birmingham | 3.50 to 4.50 |
| Boston, dealers | 4.25 to 4.50 |
| Buffalo | 6.75 to 7.25 |
| Chicago | 5.50 to 6.00 |
| Cinci., deal. | 5.50 to 6.00 |
| Cleveland | 8.00 to 8.25 |
| Detroit | 6.00 to 6.50 |
| Eastern Pa. | 8.00 to 8.50 |
| N. Y., deal. | 4.00 to 4.50 |
| Pittsburgh | 10.00 to 10.50 |
| St. Louis | 4.50 to 5.00 |
| Valleys | 10.75 to 11.00 |

**BORINGS AND TURNINGS**
*For Blast Furnace Use*

| | |
|---|---|
| Boston, dealers | 3.25 to 3.50 |
| Buffalo | 6.75 to 7.25 |
| Cinci., deal. | 5.50 to 6.00 |
| Cleveland | 8.25 to 8.50 |
| Detroit | 6.75 to 7.25 |
| Eastern Pa. | 7.00 to 7.50 |
| N. Y., deal | 4.00 to 4.50 |
| Pittsburgh | 9.25 to 9.75 |

**CAST IRON BORINGS**

| | |
|---|---|
| Birming., plain | 3.50 to 4.50 |
| Boston, chem. | 10.00 to 11.00 |
| Boston, dealers | 3.25 to 3.50 |
| Buffalo | 6.75 to 7.25 |
| Chicago | 5.75 to 6.25 |
| Cinci., deal. | 5.50 to 6.00 |
| Cleveland | 8.25 to 8.50 |
| Detroit | 6.75 to 7.25 |
| E. Pa., chem. | 12.00 to 15.00 |
| N. Y., deal | 4.00 to 4.50 |
| Pittsburgh | 9.25 to 9.75 |
| St. Louis | 4.75 to 5.25 |

**PIPE AND FLUES**

| | |
|---|---|
| Cinci., deal. | 4.50 to 5.00 |

**RAILROAD GRATE BARS**

| | |
|---|---|
| Buffalo | 5.00 to 5.50 |
| Chicago, net | 7.00 to 7.50 |
| Cincinnati | 5.00 to 5.50 |
| Eastern Pa. | 9.00 to 9.50 |
| N. Y., deal. | 5.25 to 5.50 |
| St. Louis | 6.00 to 6.50 |

**FORGE FLASHINGS**

| | |
|---|---|
| Boston, dealers | 5.00 to 5.50 |
| Buffalo | 9.00 to 9.50 |
| Cleve. ov. 10 in. | 9.00 to 9.50 |
| Detroit | 7.50 to 8.00 |

**FORGE SCRAP**

| | |
|---|---|
| Boston, dealers | 4.00 to 4.50 |
| Chicago (heavy) | 11.50 to 12.00 |
| Eastern Pa. | 10.50 |

**ARCH BARS, TRANSOMS**

| | |
|---|---|
| Chicago, net | 8.00 to 8.50 |
| St. Louis | 9.50 to 10.00 |

**AXLE TURNINGS**

| | |
|---|---|
| Boston, dealers | 4.50 to 4.75 |
| Buffalo | 7.50 to 8.00 |
| Chi., elec. fce. | 8.00 to 8.50 |
| Cleveland | 9.50 to 10.00 |
| Eastern Pa. | 10.00 to 10.50 |
| St. Louis | 5.50 to 6.00 |

**STEEL CAR AXLES**

| | |
|---|---|
| Birminham | 10.50 to 11.00 |
| Boston, ship. pt. | 8.00 to 8.50 |
| Buffalo | 10.00 to 11.00 |
| Chicago, net | 11.50 to 12.00 |
| Eastern Pa. | 15.50 |
| St. Louis | 11.50 to 12.00 |

**SHAFTING**

| | |
|---|---|
| Boston, ship. pt. | 10.00 to 10.25 |
| Eastern Pa. | 15.00 to 15.50 |
| N. Y., deal. | 10.00 to 10.25 |
| St. Louis | 8.00 to 8.50 |

**CAR WHEELS**

| | |
|---|---|
| Birming., iron | 9.50 to 10.50 |
| Boston, iron deal. | 6.75 to 7.25 |
| Buffalo, iron | 8.00 to 9.00 |
| Buffalo, steel | 11.00 to 11.50 |
| Chicago, iron | 9.50 to 10.00 |
| Chi., rolled steel | 11.00 to 11.50 |
| Cincinnati, iron | 9.00 to 9.50 |
| E. Pa., iron | 12.00 to 13.00 |
| E. Pa., steel | 14.00 to 15.00 |
| Pitts., iron | 12.25 to 12.75 |
| Pitts., steel | 14.50 to 15.00 |
| St. Louis, iron | 8.50 to 9.00 |
| St. Louis, steel | 10.00 to 10.50 |

**NO. 1 CAST SCRAP**

| | |
|---|---|
| Birmingham | 9.50 to 10.00 |
| Boston, No. 2 | 5.00 to 5.50 |
| Boston, Tex. con. | 10.75 to 11.00 |
| Buffalo, cupola | 10.00 to 10.50 |
| Buffalo (mach.) | 11.00 to 11.50 |
| Cleve. cupola | 10.50 to 11.00 |
| Chi., mach. net | 10.00 to 10.50 |
| Chi., railroad net | 9.50 to 10.00 |
| Cinci., mach. cup. | 9.00 to 9.50 |
| Cleve. cupola | 10.00 to 10.50 |
| Detroit, net | 8.50 to 9.00 |
| E. Pa., cupola | 12.00 to 13.00 |
| N. Y., cup. deal. | 6.00 to 6.50 |
| N. Y., del. local foundries | 9.00 to 9.50 |
| Pitts., cupola | 10.25 to 10.75 |
| San Fran., del. | 13.50 to 14.00 |
| Seattle | 4.50 to 6.50 |
| St. Louis, No. 1 | 9.00 to 9.50 |
| St. L. No. 1 mach. | 9.00 to 9.50 |

**HEAVY CAST**

| | |
|---|---|
| Boston, del. | 5.50 to 6.00 |
| Buffalo, break | 7.00 to 8.00 |
| Cleve., break | 7.50 to 8.00 |
| Detroit, auto net | 9.50 to 10.00 |
| Detroit, break. | 6.00 to 6.50 |
| Eastern Pa. | 11.00 to 11.25 |
| N. Y., No. 1, deal. | 7.00 to 7.50 |
| N. Y., break. deal. | 6.75 to 7.00 |
| Pittsburgh | 10.25 to 10.75 |

**MALLEABLE**

| | |
|---|---|
| Boston, consum. | 12.50 to 13.00 |
| Buffalo | 11.50 to 12.00 |
| Chicago, R. R. | 10.50 to 11.00 |
| Cinci., agri. del. | 8.75 to 9.25 |
| Cinci., R. R. del. | 9.25 to 9.75 |
| Cleveland, rail | 11.50 to 12.00 |
| Detroit, auto | 8.50 to 9.00 |
| St. Louis, R. R. | 9.50 to 10.00 |
| Eastern Pa., R. R. | 13.00 to 14.00 |

**RAILS FOR ROLLING**
*5 feet and over*

| | |
|---|---|
| Birmingham | 10.00 to 11.00 |
| Boston, dealers | 6.75 to 7.25 |
| Buffalo | 9.00 to 9.50 |
| Chicago | 11.00 to 11.50 |
| Eastern Pa. | 13.00 |
| New York, dealer | 8.00 to 8.25 |
| St. Louis | 10.50 to 11.00 |

**LOCOMOTIVE TIRES**

| | |
|---|---|
| Chicago, cut | 11.00 to 11.50 |
| St. L., No. 1 | 8.50 to 9.00 |

**LOW PHOS. PUNCHINGS**

| | |
|---|---|
| Buffalo | 11.00 to 11.50 |
| Chicago | 11.50 to 12.00 |
| Eastern Pa. | 13.00 to 14.00 |
| Pittsburgh | 15.00 to 15.50 |

though some shipments on contract continue. A shipload of 1000 tons of heavy melting steel from Milwaukee was unloaded last week for Corrigan, McKinney Steel Co. Low stocks on mill yards indicate buying of steel scrap shortly.

**Chicago**—Scrap prices are easier in the face of a lack of interest in new purchases by consumers. Heavy melting steel is 50 cents lower at $9.50 to $10, mills having been offered material at the latter price. Quotations on a number of other steelworks grades are similarly easier. Absence of buying has accompanied the decline in consumption and the quieter situation in steel. Shipments against orders are nearly completed.

**Boston**—With few exceptions, scrap prices are steady, with buying light. Mixed borings and turnings and machine turnings are off, but steelmaking grades are steady, a New England consumer paying $8.50, delivered, for a tonnage of No. 2. Movement of scrap outside the district is light, although some buying for shipment by barge continues.

**New York**—Except for a few grades scrap prices are unchanged or nominal because of light demand. The few adjustments made are downward, stove plate, No. 2 heavy melting steel and borings and turnings being slightly lower. Shipments are light, several eastern consumers still holding back deliveries.

**Philadelphia**—No. 1 steel in eastern Pennsylvania is down $1.50 on a purchase of 2000 tons by Bethlehem Steel Co. at $10.50, delivered. No. 2 heavy melting steel is nominally off $1 to $9.50. Other prices are easier. Trading is dull.

**Buffalo**—There is no new demand for scrap, but shipments on contracts continue heavy. Dealers quote present nominal prices on all inquiries and are relying upon the new pig iron prices to strengthen scrap prices. Incoming receipts of boat scrap continue heavy.

**Detroit**—Absolute apathy on the part of steel mills has finally weakened the scrap market in Detroit. Heavy melting steel and compressed sheets are off 50 cents to $9 to $9.50, with other grades in proportion. This weakness is expected to continue through September or until steel operations show an increase. Dealers, however, are confident that this fall will see the beginning of a real recovery.

**Cincinnati**—An easy tendency is noted in the scrap market. Mills are taking material against contracts but doing little additional buying. Tighter restrictions against scrap shipments in some nearby territory add to softness of the market. Prices are nominally unchanged.

**St. Louis**—Buyers and sellers of iron and steel scrap are disposed to mark time over Labor day and pending the appearance of more definite trends. Meanwhile, the market is firm, with offerings moderate. Shipments on contracts are at the recent high rate, with all users anxious to get their scrap in plant yards.

**Birmingham, Ala.** — Demand for steel and iron scrap is holding well and prices are firm. Heavy melting steel is most active. Railroad offerings are likely to be heavy as repair work progresses.

**Toronto, Ont.**—Iron and steel scrap sales are increasing slowly. Consumers show interest in special grades and buy small lots. No. 1 cast scrap is fairly active, stove plate and malleable are spotty and most other lines dull. Both Toronto and Montreal dealers report good business in steel scrap for export, but only small domestic sales.

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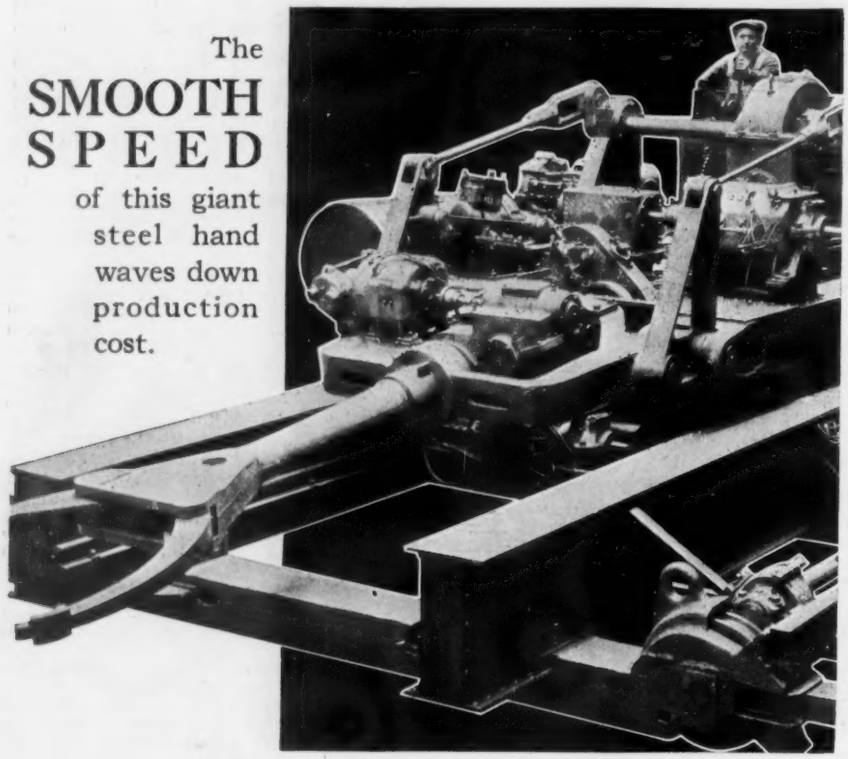

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# Warehouse

## August Sales Above July; Some Prices Are Advanced

**Pittsburgh**—Large rivets are now quoted at 3.25c per 100 pounds, Pittsburgh, an advance of 25 cents, although other prices continue unchanged. A revision in the price of nails at $2.40 per keg out of stock, black wire at 2.55c and galvanized wire at 2.90c is expected. Hot-rolled and black sheet prices have not been changed.

**Cleveland** — August volume of warehouse business here showed little reduction from that of July. Sales recently, however, have been much slower. Prices are unchanged. Warehouse interests here do not expect new mill prices under the steel code to be reflected in their schedules before a week or ten days.

**Chicago**—While sales show no improvement, recent gains have been retained and August business compares favorably with July. Warehouses anticipate a fall upturn, with demand aided by better business from agricultural districts. Prices are unchanged.

**New York**—Effort to stabilize bolt, nut and rivet prices at slightly higher quotations on some items is partially successful. Demand is well spread for warehouse steel, with August volume at least up to the previous month, some jobbers reporting a gain of as much as 10 per cent.

**Boston**—Most volume with several jobbers, notably those outside the immediate Boston district, is from the larger accounts. Prices are unchanged and steady.

**St. Louis**—Leading interests report that while the last half of August was not as good as the first half, business for the month slightly exceeded that of July. Prospects for early September are hopeful as southern buying is expected to gain volume.

**Detroit**—Appearance of the first tool and die programs promises a livelier warehouse market in September. Demand for jobber steel in August was spotty but the aggregate was as good as in July. Large rivets out of warehouses have been advanced 25 cents, making the new base 3.25c per 100 pounds. Small rivets are unchanged at 60 and 5 off. Quantity extras hold on both. The advance has not affected bolts and nuts, still 65 off list.

**Cincinnati** — Warehouse business here for August was slightly better than for July. Demand for stainless steel and other materials for brewery equipment has been well maintained. Prices are unchanged.

## Warehouse Quotations at Leading Centers, in Cents Per Pound

**STEEL BARS**

| | |
|---|---|
| Baltimore* | 2.60c |
| Boston†† | 2.65c |
| Buffalo | 2.95c |
| Chattanooga | 3.00c |
| Chicago | 2.75c |
| Cincinnati | 3.00c |
| Cleveland | 2.75c |
| Detroit | 2.85c |
| Houston | 2.40c |
| Los Ang. | 3.30c |
| New Orleans | 2.65c |
| New York‡ (d) | 3.10c |
| Philadelphia* | 2.60c |
| Pittsburgh | 2.60c |
| Portland | 3.15c |
| San Fran. | 3.35c |
| Seattle | 3.15c |
| St. Louis | 3.00c |
| St. Paul | 3.00c |
| Tulsa | 3.25c |

**IRON BARS**

| | |
|---|---|
| Baltimore* | 2.60c |
| Boston | 3.25c |
| Chattanooga | 3.00c |
| Chicago | 2.75c |
| Cincinnati | 3.00c |
| Detroit | 2.85c |
| New York‡(d) | 3.10c |
| Philadelphia* | 2.60c |
| St. Louis | 3.00c |
| Tulsa | 3.25c |

**REINFORC. BARS**

| | |
|---|---|
| Baltimore | 2.35c-3.00c |
| Boston | 2.75c-3.25c |
| Buffalo | 2.95c |
| Chattanooga | 3.00c |
| Cincinnati | 3.00c |
| Cleveland | 2.00c-2.45c |
| Detroit | 2.85c |
| Houston | 3.00c |
| Los Ang. cl. | 2.10c |
| New Orleans | 2.75c |
| Los Ang., lcl | 2.40c |
| New York | 2.65c-3.10c |
| Phila. | 2.62½c |
| Pittsburgh | 2.60c |
| San Fran. cl. | 2.00c |
| San Fran. lcl | 2.40c |
| Seattle | 3.15c |
| St. Louis | 3.15c |
| Tulsa | 3.25c |
| Young. | 2.30c-2.60c |

**SHAPES**

| | |
|---|---|
| Baltimore* | 2.60c |
| Boston†† | 2.75c |
| Buffalo | 3.20c |
| Chattanooga | 3.20c |
| Chicago | 3.00c |
| Cincinnati | 3.25c |
| Cleveland | 2.95c |
| Detroit | 3.10c |
| Houston | 2.65c |
| Los Ang. | 3.30c |
| New Orleans | 3.50c |
| New York(d) | 3.10c |
| Philadelphia* | 2.60c |
| Pittsburgh | 2.85c |
| Portland | 3.15c |
| San Fran. | 3.35c |
| Seattle | 3.15c |
| St. Louis | 3.25c |
| St. Paul | 3.25c |
| Tulsa | 3.50c |

**PLATES**

| | |
|---|---|
| Baltimore* | 2.60c |
| Boston†† | 2.75c |
| Buffalo | 3.20c |
| Chattanooga | 3.20c |
| Chicago | 3.00c |
| Cincinnati | 3.25c |
| Cleveland, ¼ in. and thicker | 2.95c |
| Cleve., 3/16-in | 3.20c |
| Detroit | 3.10c |
| Det., 3/16-in. | 3.10c |
| Houston | 3.00c |
| Los Angeles | 3.30c |
| New Orleans | 3.50c |
| New York (d) | 3.30c |
| Philadelphia* | 2.60c |
| Phila. floor | 4.35c |
| Pittsburgh | 2.85c |
| Portland | 3.15c |
| San Fran. | 3.35c |
| Seattle | 3.15c |
| St. Louis | 3.25c |
| St. Paul | 3.25c |
| Tulsa | 3.50c |

**NO. 10 BLUE**

| | |
|---|---|
| Baltimore* | 2.75c |
| Boston†† | 2.65c |
| Buffalo | 3.10c |
| Chattanooga | 3.44c |
| Chicago | 2.85c |
| Cincinnati | 3.05c |
| Cleveland | 2.75c |
| Det., 8-10 ga. | 2.90c |
| Houston | 3.35c |
| Los Ang. | 3.45c |
| New Orleans | 3.25c |
| New York | 3.00c |
| Portland | 3.75c |
| Philadelphia* | 2.75c |
| Pitts.** | 2.75c |
| San Fran. | 3.53c |
| Seattle | 3.75c |
| St. Louis | 3.10c-3.25c |
| St. Paul | 3.45c |
| Tulsa | 3.70c |

**NO. 24 BLACK**

| | |
|---|---|
| Balt.*† | 3.25c |
| Boston†† | 3.60c |
| Buffalo | 3.25c |
| Chattanooga | 3.50c |
| Chicago | 3.45c |
| Cincinnati | 3.60c |
| Cleveland | 3.25c |
| Detroit | 3.30c |
| Los Ang. | 4.05c |
| New York | 3.65c |
| Philadelphia*† | 3.30c |
| Pitts.** | 3.40c |
| Portland | 4.50c |
| San Fran. | 4.15c |
| Seattle | 4.50c |
| St. Louis | 3.60c |
| St. Paul | 3.695c |
| Tulsa | 4.75c |

**NO. 24 GAL. SHEETS**

| | |
|---|---|
| Balt.*† | 3.75c |
| Buffalo | 4.00c |
| Boston†† | 4.15c |
| Chattanooga | 3.95c |
| Chicago | 4.00c-4.10c |
| Cincinnati | 4.15c |
| Cleveland | 3.85c |
| Detroit | 3.85c |
| Houston | 3.57c |
| Los Ang. | 4.65c |
| New Orleans | 4.25c |
| New York | 4.00c |
| Pitts.** | 3.75c-4.00c |
| Portland | 5.00c |
| San Fran. | 4.75c |
| Seattle | 5.00c |
| St. Louis | 4.25c |
| St. Paul | 4.19c |
| Tulsa | 5.10c |
| Philadelphia*† | 3.75c |

**†BANDS**

| | |
|---|---|
| Baltimore | 2.90c |
| Boston†† | 3.15c |
| Buffalo | 3.30c |
| Chattanooga | 3.20c |
| Chicago | 2.95c |
| Cincinnati | 3.20c |
| Cleveland | 3.00c |
| Det. 3/16-in. & lighter | 3.15c |
| Houston | 2.85c |
| Los Ang. | 3.80c |
| New Orleans | 3.00c |
| New York(d) | 3.30c |
| Philadelphia | 2.90c |
| Pittsburgh | 2.95c |
| Portland | 3.65c |
| San Fran. | 3.15c |
| Seattle | 3.65c |
| St. Paul | 3.20c |
| Tulsa | 3.45c |
| St. Louis | 3.20c |

**†HOOPS**

| | |
|---|---|
| Baltimore | 2.80c |
| Boston | 4.90c |
| Buffalo | 3.55c |
| Chicago | 3.50c |
| Cincinnati | 3.75c |
| Det. No. 14 & lighter | 3.65c |
| New York | 3.30c |
| Philadelphia | 3.15c |
| Pittsburgh | 3.60c |
| Seattle | 5.15c |
| St. Paul | 3.75c |

**COLD FIN. STEEL**

| | |
|---|---|
| Baltimore (c) | 3.33c |
| Boston (g) | 3.70-4.20c |
| Buffalo | 3.00c |
| Chattanooga* | 3.90c |
| Chicago | 3.25c |
| Cincinnati | 3.57c |
| Clevel'd, flats | 3.40c |
| Do., rounds squares, hexagons | 3.25c |
| Detroit | 3.40c |
| Los Ang. | 5.85c |
| New Orleans | 4.25c |
| New York | 3.79c |
| Philad. (c) | 3.35c |
| Pittsburgh | 3.20c |
| Portland (f) | 4.50c |
| San Fran. (d) | 5.85c |
| Seattle (f) | 4.50c |
| St. Paul | 3.20c |
| St. Louis | 3.61c |
| Tulsa | 4.65c |

**COLD ROLL. STRIP**

| | |
|---|---|
| Boston 0.100 in., 500 lb lots | 5.20c |
| Buffalo | 5.25c |
| Chicago (b) | 5.65c |
| Cincinnati | 5.80c |
| Cleve. (b) | 5.55c |
| Detroit | 5.40c |
| Phila. (c) | 4.55c |
| New York | 4.55c |

(a) Rounds, hex. only.
(b) Net base straightening, cutting boxing 1 ton or more.
(c) Plus mill, size and quantity extras.
(d) Minus quant. diff.
(e) New mill classif
(f) Rounds only.
(g) Bessemer analysis extras not included

‡Domestic bars.
*Plus quan. extras.
**Under 25 bundles.
*†50 or more bundles.

†New extras apply.

††Base 40,000 lbs., extras on less.

Prices at Detroit, Cleveland, New York, Chicago, Pittsburgh Cincinnati, Chattanooga and St. Louis on heavier lines are subject to new quantity differentials:

399 pounds and less, up 50 cents; 400 to 3999 pounds, base; 4000 to 7999 pounds, 15 cents off; 8000 to 14,999 pounds, 30 cents off; 15,000 to 39,999 pounds, 50 cents off; 40,000 pounds and over, 60 cents off.

## Barging Steel from Rankin

McClintic-Marshall Corp. has resumed the barging of structural steel from its Rankin, Pa., plant in the Pittsburgh district down the Ohio river to New Orleans, where steel is being used for the Belt Line bridge now building there.

## Navy Places Gun Forgings

Contracts have been placed by the navy department, bureau of ordnance, for gun barrel forgings as follows: Crucible Steel Co. of America, 88 five-inch/38 forgings, $117,617.28 and 32 five-inch/25's at $22,087.36.

National Forge & Ordnance Co., 40 five-inch/38's, $55,664.70.

Erie Forge Co., 96 housing forgings, $211,166.40.

Bids on these forgings, the largest inquiry of its kind in a long period, closed Aug. 21.

## Low on Navy Steel Forgings

Allis-Chalmers Mfg. Co., Milwaukee, is low on 45,000 pounds of rough machined steel forgings for the Boston, Brooklyn and Philadelphia navy yards at $10,125, delivered, and on 9000 pounds for delivery at Puget Sound at 24.5c; bids Aug. 22.


# The Business Outlook This Fall

The many and varied opinions relating to developments of the National Recovery program and the outlook for business place a burden on every executive to seek as much information as possible in order to guide him in the period ahead.

The current Brookmire Forecaster discusses fully and recommends a policy for the next several months. This report can be valuable to you. It is the opinion of an organization which for twenty-nine years has been relating and interpreting economic forces influencing business and security markets.

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# Men of Industry

(*Concluded from Page* 23)

American Car & Foundry Co., Berwick, Pa.; John P. Mudd, Midvale Co., Nicetown, Pa.; and William H. Chestnut, Baldwin Locomotive Co., Eddystone, Pa.; in addition to representatives from leading plate glass companies in the state and Pennsylvania department of labor and industry representatives.

□ □ □

R. T. Hendrich has become affiliated with the sales division of the Ferro Enamel Corp., Cleveland.

□ □ □

Peter Knowles, for 12 years New York manager of Potts Mfg. Co., Mechanicsburg, Pa., ornamental iron and structural steel, has been named president to succeed F. R. Smith, deceased.

□ □ □

L. F. McKay, mid-continent manager, Wackman Welded Ware Co., St. Louis, has opened offices at 1036 Kennedy building, Tulsa, Okla. Mr. McKay formerly was connected with American Flange & Mfg. Co., Chicago, as purchasing agent.

□ □ □

L. L. Dresser, formerly president, Machine Tool & Supply Co., Tulsa, Okla., has formed the Dresser Engineering Co. with offices in the Hunt building, Tulsa. The company will engage in oil field construction work specializing in construction of special type filling stations. Mr. Dresser also represents the Stefo Steel Co., Michigan City, Ind., in the Southwest.

## Canadian Imports Decline

Imports of iron ore into Canada in June were 7820 tons, bringing the total for 12 months ending with June to 74,294 tons, compared with 650,302 tons for the immediately preceding 12 months. Imports of pig iron were 297 tons, bringing the 12 months total to 4889 tons, compared with 19,194 tons in the preceding 12 months. Scrap iron and steel billets were imported to the total of 611 tons in June.

Dominion Steel & Coal Corp., Sydney, N. S., has received from the La Salle Coke Co., Montreal, Que., an order for 35,000 tons of coal which will be divided between the corporation's subsidiaries, Nova Scotia Steel & Coal Co. and Dominion Coal Co.

## Windows of Washington

(*Concluded from Page 20*)

ores, the American Manganese Producers' association claims in a petition filed with General Johnson, for consideration after the manganese code becomes effective.

Estimated reserves of low grade manganese ore in the United States are placed at 200,000,000 to 600,000,000 tons. Through newly developed processes high grade domestic ores recovered from the lower grade deposits run 57 per cent metallic manganese, while similar foreign ores run only 48 per cent, it is claimed.

Employes in the manganese industry in India are paid wages averaging 1 cent per hour, but even these low cost operations have been halted by Russian production based upon "forced, convict and conscripted labor paid with printing press rubles," according to the association. The manganese code will pay workmen in the United States 30 to 70 cents an hour. It has not yet been set down for hearing.

CHARLES W. WILKERSON, of the International Molders' union, has been appointed labor adviser for the steel casting industry, the code for which has been filed by the Steel Founders' Society of America, to be heard Sept. 7 by Deputy Administrator King. . . . The malleable iron industry has gone under the modified agreement with the President with a maximum work week of 40 hours and hourly rates ranging from 25 cents in the South to 40 cents in the North. . . . The metal lath industry has put into effect a maximum work week of 48 hours and a minimum wage of 35 cents. . . . The national labor board Wednesday began arbitrating the dispute on the public works bridge at New Orleans, the strike having been called off on promise of arbitration. American Bridge Co. and McClintic-Marshall Corp. were represented. . . . Twenty-two national associations in the construction industry approved the code of the Construction League of the United States, on which hearings begin Sept. 6 before Deputy Administrator Muir. It is claimed that 3,000,000 wage earners now at work will be affected, plus 2,000,000 persons additional necessitated by the public works program. . . . The code for the boiler manufacturers and affiliated industries calls for a work week of 40 hours and wage rates from 30 to 37 cents, with a general minimum wage to employes other than sales people, office boys, etc., of $15 . . . . The code for the coated abrasives industry specifies an average work week of 40 hours with a minimum wage of 36 cents.


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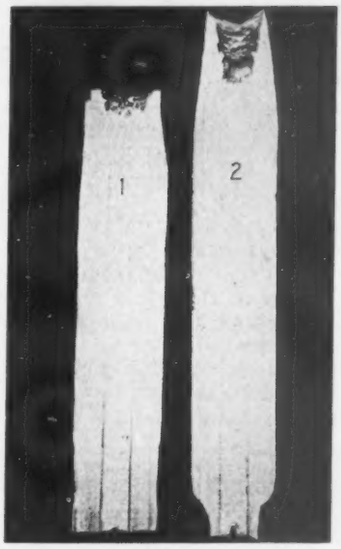


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## Nonferrous Mill Products

*Base price cents per pound f.o.b. mill except otherwise specified. Copper and brass product prices based on 9.00c, Conn., for copper*

| | |
|---|---|
| **Sheets** | |
| Yellow brass (high) | 14.75 |
| Copper, hot rolled | 17.12½ |
| Lead sheets, cut to jobbers | 8.25 |
| Zinc sheets (100-lb. base) | 9.00 |
| **Tubes and Pipes** | |
| Seamless yellow brass (high) | 16.37½ |
| Seamless copper | 16.62½ |
| **Rods** | |
| Yellow brass (high, full turnings) | 12.25 |
| Naval brass | 13.37½ |
| **Anodes** | |
| Copper, untrimmed | 14.50 |
| **Wire** | |
| Yellow brass (high) | 14.75 |

## Old Metals

*Dealers' buying prices, cents lb*

| | |
|---|---|
| **No. 1 Composition Red Brass** | |
| New York | 5.00 to 5.25 |
| Chicago | 4.75 to 5.00 |
| Cleveland | 5.50 to 5.75 |
| St. Louis | 4.50 to 4.75 |
| **Heavy Yellow Brass** | |
| New York | 3.75 to 4.00 |
| **Heavy Copper and Wire** | |
| New York | 6.75 to 7.00 |
| Chicago, No. 1 | 6.37½ to 6.62½ |
| Cleveland | 5.75 to 6.50 |
| St. Louis | 5.25 to 5.50 |
| **Composition Brass Borings** | |
| New York | 4.75 to 5.00 |
| **Yellow Brass Tubing** | |
| Cleveland | 4.00 to 4.50 |
| **Light Copper** | |
| New York | 5.50 to 5.75 |
| Chicago | 5.12½ to 5.37½ |
| Cleveland | 5.25 to 5.75 |
| St. Louis | 5.00 to 5.25 |
| **Light Brass** | |
| Chicago | 3.00 to 3.25 |
| Cleveland | 3.00 to 3.50 |
| St. Louis | 2.75 to 3.00 |
| **Lead** | |
| New York | 3.50 to 3.62½ |
| Cleveland | 3.00 to 3.50 |
| Chicago | 3.25 to 3.50 |
| St. Louis | 3.25 to 3.50 |
| **Zinc** | |
| New York | 2.25 to 2.50 |
| Cleveland | 2.25 to 2.75 |
| Chicago | 2.50 to 2.75 |
| St. Louis | 2.75 to 3.00 |
| **Aluminum** | |
| Clippins, new, soft, Cleve. | 13.00 to 14.00 |
| Clippings, new, soft, Cleve. | 13.00 to 14.00 |
| Borings, Cleveland | 5.00 to 6.00 |
| Mixed cast, Cleveland | 8.25 to 8.75 |
| Mixed cast, St. Louis | 8.00 to 8.50 |

## Secondary Metals

| | |
|---|---|
| Brass ingot, 85-5-5-5 | 9.00 |
| Remelt aluminum No. 12 | 12.75 to 13.75 |

# Metals

**Demand for Lead Outstanding In Generally Slow Market — Price Steady Except Zinc**

**New York**—Demand for lead was outstanding in the nonferrous metal market last week. Moderate sales of zinc also were made but copper, tin and antimony were quiet. Prices showed a fairly steady tone with the exception of zinc which went lower. Attention of the trade continued to be centered on trade practice codes. Action on the codes already submitted has been slow and this resulted in continued uncertainty as to the future course of the markets. Reports are to the effect that the lead trade hearing will take place Sept. 23, that for zinc Sept. 21 and for copper at around the same time.

**Copper**—First-hand sellers maintained a firm position as regards prices, the small amount of business being done by these interests going at 9.00c, Connecticut, 9.12½c, Midwest, and 8.87½c, refinery, for electrolytic. Some resale metal was in the market at shaded prices but this had no undermining effect on the general firmness.

**Zinc**—Prices moved lower accompanied by the placing of occasional fair orders. Some sellers resisted easiness and either held quotations unchanged or withdrew from the market. High-grade sellers have refused to follow the market downward and have set up the policy of quoting 1 cent over the prime western average for August unless the current price should be higher. The August average was 4.915c, thus making the high-grade figure 5.915c.

**Lead**—Battery makers, foil producers and corroders were the chief buyers in the lead market last week. Cable makers showed little interest. Most of the business was booked for September delivery. Little has been taken as yet for October although books are officially open for that month. August shipments of lead fell only a little below the 45,200 tons moved in July, which was the heaviest tonnage since late in 1930.

**Tin**—Prices were fairly steady, being guided largely by movement of sterling exchange and prices on the London Metal exchange. Carlot sales and less were the rule. Ninety-nine per cent tin is unavailable before early October.

**Antimony**—The market was steady but dull.

**Aluminum** — Prices were unchanged. Demand was quiet.

## Supply Curbs Toluol Trade

**New York**—September shipments of toluol will be limited by the supply, distributors being unable to take on much spot business, barely meeting contract requirements. Much the same situation prevails in the market for xylol. Demand for benzol holds well, but this material is in better supply. Prices for all distillates are firm and unchanged. Sulphate of ammonia prices will remain unchanged for September.

## Coke By-Products

Per Gallon Producers' Plants, Tank Lots

| | Spot |
|---|---|
| Pure benzol | $0.22 |
| 90 per cent benzol | 0.22 |
| Toluol | 0.30 |
| Solvent naphtha | 0.26 |
| Commercial xylol | 0.26 |

Per Pound at Producers' Plants in 250-Pound Drums

| | |
|---|---|
| Phenol | 0.153 to 0.173 |

Per Pound at Producers' Plants

| | |
|---|---|
| Naphthalene flakes | 4.75 to 5.75 |
| Naphthalene balls | 4.75 to 5.75 |

Per 100 Pounds Atlantic Seaboard

| | |
|---|---|
| Sulphate of ammonia | $1.20 |

## Quicksilver Steady

**New York**—Quicksilver prices are unchanged in a quiet market. Round lots are quoted generally $63 a virgin flask of 76 pounds, but small lots are $63.50 to $64.50.

## Nonferrous Metal Prices of the Week, Cents a Pound

Spot unless otherwise specified

| | Copper, Electro., del. Conn. | Copper, Lake, del. Midwest | Copper, Casting, refinery | Straits Tin, New York, Spot | Straits Tin, New York, Futures | Lead, New York | Lead, East St. L. | Zinc, St. L. | Aluminum, 98-99% | Antimony, Spot, N. Y. | Ingot Nickel |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aug. 26 | 9.00 | 9.12½ | 8.75 | 46.00 | 46.25 | 4.50 | 4.35 | 4.80 | *22.90 | 6.87½ | 35.00 |
| Aug. 28 | 9.00 | 9.12½ | 8.75 | 45.50 | 45.75 | 4.50 | 4.35 | 4.75 | *22.90 | 6.87½ | 35.00 |
| Aug. 29 | 9.00 | 9.12½ | 8.75 | 46.12½ | 46.35 | 4.50 | 4.35 | 4.75 | *22.90 | 6.87½ | 35.00 |
| Aug. 30 | 9.00 | 9.12½ | 8.75 | 45.60 | 45.90 | 4.50 | 4.35 | 4.72½ | *22.90 | 6.87½ | 35.00 |
| Aug. 31 | 9.00 | 9.12½ | 8.75 | 45.70 | 45.95 | 4.50 | 4.35 | 4.70 | *22.90 | 6.87½ | 35.00 |
| Sept. 1 | 9.00 | 9.12½ | 8.75 | 45.60 | 45.95 | 4.50 | 4.35 | 4.70 | *22.90 | 6.87½ | 35.00 |

*Nominal quotation. Market range 19.90c to 22.90c

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# Here and There in Industry

UNITED STATES PIPE & FOUNDRY CO., East Burlington, N. J., has started remodeling part of its plant at Bessemer, Ala., at a cost of about $250,000. The changes are undertaken to enlarge its capacity for production of deLavaud centrifugal cast iron pipe. Five complete deLavaud pipe machines will be installed, four to produce pipe from 3 to 12 inches, inclusive, and the fifth to produce 14 to 24-inch pipe, inclusive. All diameters will be in 18-foot lengths. A large annealing furnace and three new cupolas will be added. The annealing furnace and core ovens will be gas-fired. The furnace is built by the R. & S. Products Co., Philadelphia. Structural steel work is by the Virginia Bridge & Iron Works. Cast steel roof plates, a new product of the United States Pipe company, will be used. The Bessemer plant will be equipped to manufacture all types of cast iron pipe and fittings as well as special castings. The plant already has a large foundry for production of pit-cast pipe up to 72 inches in diameter and a foundry for manufacture of sugar house machinery, chemical castings, pipe fittings and special castings.

□ □ □

Kron Co., Bridgeport, Conn., manufacturer of automatic industrial dial scales, has appointed the following distributors for its complete line: Equipment Engineering Co., 52 Whitney avenue, New Haven, Conn.; R. S. Kerr & Co., 610 Means street, Atlanta, Ga.; Equipment Engineering Co., 210 South Pennsylvania street, Indianapolis.

□ □ □

S. F. Bowser & Co., Fort Wayne, Ind., is being reorganized and refinanced by business men of Fort Wayne after dissolution of a refinancing contract with a Detroit firm.

□ □ □

Chicago Pneumatic Tool Co., New York, will open a branch office at 1028 Sixth avenue South, Seattle, Sept. 1. Stock of the company's products will be carried, as well as parts for servicing.

□ □ □

Nevada Massachusetts Corp., Mill City, Nev., has gone on three shifts because of an increase in demand for tungsten ore. The daily capacity of the corporation, of which Otto F. Heizer is manager, is 220 tons.

□ □ □

Cockshutt Plow Co. Ltd., Brantford, Ont., has obtained control of the Frost & Wood Co. Ltd., Smiths Falls, Ont., and will amalgamate the two into a large producer of agricultural implements. The merger will be made on the basis of exchange of shares.

□ □ □

International Business Machines Corp., New York, has broken ground for the third addition since 1929 to its plant at Endicott, N. Y. The new wing will add 68,000 square feet of manufacturing space, additions in the four years totaling 138,000 square feet. Employes have been increased in the same time from 1100 to 2700 at the Endicott plant.

□ □ □

Heat Transfer Products Corp, has been formed at Huntington, Ind., to manufacture radiators and other heat and cold transfer devices. Machinery and patents of a Detroit concern have been bought and will be moved to an idle building owned by the Caswell-Runyan Co. at Huntington.

□ □ □

Fred Miller Brewing Co., Milwaukee, has placed a number of orders for brewery equipment in its modernization and enlargement program. The Heil Co., Milwaukee, has a contract for 98 steel storage tanks, with 100 more to be bought soon. Vilter Mfg. Co., Milwaukee, is building a 200-ton refrigerating machine and George J. Meyer Mfg. Co., Milwaukee, an automatic bottling unit.

□ □ □

Hanlon, Waters & Co., Tulsa, Okla., have entered into an arrangement with the Oklahoma Iron Works, Tulsa, by which they will manufacture a complete line of valves and regulating equipment for refineries and gasoline plants at the plant of the latter. The office of Hanlon, Waters & Co. has been moved from 301 East First street to the National Bank of Tulsa building. M. F. Waters is president, in charge of manufacturing, and J. H. Boyle is general manager.

□ □ □

Smoot Engineering Corp., Summit, N. J., manufacturer of Smoot control, has moved its general offices and plant to Summit where complete engineering and manufacturing facilities have been provided. The former office at 136 Liberty street, New York, is retained as a sales office with H. R. Kessler in charge. A sales office has been opened at 405 Bessemer building, Pittsburgh, in charge of C. L. Joly. A sales office will be opened shortly in Chicago.

□ □ □

General Electric Co., Schenectady, N. Y., and four of its associated companies have moved their New York offices to the new General Electric building, 570 Lexington avenue, at Fifty-first street. The company formerly maintained offices for 15 years at 120 Broadway. At the new address are the executive offices, New York district office, air conditioning department, electric refrigeration department, Atlantic division of the incandescent lamp department, merchandise department and plastics department of the General Electric Co., the General Electric Contracts Corp., G. E. Employes Securities Corp., General Electric Realty Corp., and International General Electric Co. Inc. Approximately 50 per cent of the new building is occupied by the company.

# Pacific Coast

**Pipe Line Award Takes 5200 Tons Steel Plates — Most Lettings Small Lots — Much Pending Tonnage Promises Good Demand for Fall — Pipe Sales Larger Than Last Year**

**San Francisco**—(*By Air Mail*)—Featuring the market this week was the award of 5200 tons of plates for a pipe line at Pasadena, Calif., for the Pine Canyon dam, to the Consolidated Steel Corp. and 1850 tons of cast iron pipe for Oakland, Calif., secured by the American Steel Pipe & Foundry Co. Prices now are on a firm basis and many consumers plan to buy before higher levels come.

Reinforcing bar lettings involved only lots of less than 100 tons. However, a number of new projects have come into the market for figures. California will open bids Sept. 13 and 15 for close to 700 tons for highway and bridge work. Los Angeles county will take bids Sept. 11 for 138 tons for a conduit line on Elm avenue. Pending business exceeds 12,000 tons.

Awards of plates were the largest in over two months. San Francisco opened bids Aug. 31 for 120 tons for the Hetch Hetchy pipe line. Bids will be called for in October for 1200 tons for two destroyers to be built at Mare Island, Calif. Bids have been opened on 195 tons of cold-rolled sheet steel for Mare Island. Prices hold at 2.10c, c.i.f.

Structural awards were confined to unimportant tonnages, but pending business calls for more than 6000 tons. Bids were opened on 932 tons for a bridge over the Missouri river in Montana. New inquiries include 680 tons for a bridge over the Russian river in California and 268 tons for two bridges in Plumas and Mendocino counties, California. Wide flange material holds at 2.20c, and standard shapes at 2.10c, c.i.f.

Cast iron pipe bookings were the largest in over a month and the total placed so far this year is 7000 tons greater than for the corresponding period a year ago. Victorville and Whittier, Calif., have applied for funds under the RFC for water systems involving 350 and 315 tons of pipe respectively.

## Seattle Activity Gains

**Seattle** — Increasing activity is noted in the iron and steel industries of the Pacific Northwest, public funds for construction being available in larger amounts. Continued improvement is reasonably expected although some projects have been so long delayed that unfavorable weather may cause postponement of much work until next year.

Awards this week were in small lots but maintained recent levels. Washington has awarded 150 tons of reinforcing bars for additions to the Medical Lake and Sedro Woolley hospitals and the Walla Walla prison to the Pacific Coast Steel Corp., Seattle, Truscon Steel Co., Portland, and Consolidated Steel Co. The Walla Walla contract included 100 tons of beams and grating awarded to Union Iron Works, Spokane. Unnamed interests were awarded 100 tons of shapes for the Marshfield, Oreg., postoffice, K. E. Parker, San Francisco, general contractor. American Cast Iron Pipe Co., Birmingham, Ala., has closed for 325 tons of 6, 10 and 18 inch monocast pipe and accessories for the McNeil Island, Wash., federal penitentiary.

# Steel in Europe

### British Outlook Hopeful; Continental Trade Quiet

**London**—(*By Radio*)—Quiet prevails in the steel and iron trade with the outlook encouraging in domestic and export demand. Germany has bought some pig iron from British makers. Steelworks order books are fairly well filled and the Middlesbrough structural steel trade is expanding, with shipbuilding showing some revival. Continental makers continue to sell semifinished steel to regular customers. Mills in the Staffordshire area are gaining business. Exports of sheets are dull but light castings are fairly active.

The Continent reports quiet conditions, and weakness in sterling is detrimental. Northern Europe and the Balkans are buying steel from Germany. The fall outlook is encouraging.

## Current Iron and Steel Prices of Europe

**Dollars at Rates of Exchange, Aug. 30**

### Export Prices f.o.b. Ship at Port of Dispatch—By Cable (or Radio)

| | British gross tons U. K. ports | | Continental Channel or North Sea ports, metric tons Gold parity, $4.8665 | |
|---|---|---|---|---|
| **PIG IRON** | | £ s d | | £ s d |
| Foundry, 2.50-3.00 Silicon | $13.25 | 2 18 6 | $8.27 | 1 14 0 |
| Basic bessemer | 12.23 | 2 14 0* | 7.30 | 1 10 0 |
| Hematite, Phos. .03-.05 | 13.36 | 2 19 0 | .... | ..... |
| **SEMIFINISHED STEEL** | | | | |
| Billets | $22.65 | 5 0 0 | $11.44 | 2 7 0 |
| Wire rods, No. 5 gage | 33.98 | 7 10 0 | 21.90 | 4 10 0 |
| **FINISHED STEEL** | | | | |
| Standard rails | $35.11 | 7 15 0 | $26.77 | 5 10 0 |
| Merchant bars | 1.36c | 6 15 0 | .66c | 3 0 0 |
| Structural shapes | 1.49c | 7 7 6 | .61c | 2 15 0 |
| Plates, †¼ in. or 5 mm. | 1.67c | 8 5 0 | .86c | 3 18 6 |
| Sheets, black, 24 gage or 0.5 mm. | 1.82c | 9 0 0 | 1.27c | 5 15 0 |
| Sheets, gal., 24 gage, corr. | 2.22c | 11 0 0 | 1.60c | 7 5 0 |
| Bands and strips | 1.57c | 7 15 0 | .83c | 3 15 0 |
| Plain wire, base | 1.77c | 8 15 0 | 1.18c | 5 7 6 |
| Galvanized wire, base | 2.12c | 10 10 0 | 1.38c to 1.40c | 6 5 6 to 6 7 6 |
| Wire nails, base | 2.42c | 12 0 0 | 1.27c | 5 5 0 |
| Tin plate, box 108 lbs. | $ 3.79 | 0 16 9 | ..... | ..... |

British ferromanganese $82 delivered Atlantic seaboard, duty-paid. German ferromanganese £9 0s 0d ($43.74) f.o.b.

### Domestic Prices at Works or Furnace—Last Reported

| | | £ s d | | French Francs | | Belgian Francs | | Reich Marks |
|---|---|---|---|---|---|---|---|---|
| Fdy. pig iron, Si. 2.5 | $14.16 | 3 2 6(a) | $11.70 | 210 | $11.91 | 300 | $21.36 | 63 |
| Basic bessemer pig iron | 13.36 | 2 14 0(a) | 10.86 | 195 | 11.11 | 280 | 23.56 | 69.50 |
| Furnace coke | 3.00 | 0 13 3 | 6.68 | 120 | 4.37 | 110 | 6.53 | 19.25 |
| Billets | 22.65 | 5 0 0 | 22.56 | 405 | 17.47 | 440 | 32.71 | 96.50 |
| Standard rails | 1.67c | 8 5 0 | 1.75c | 700 | 1.98c | 1,100(b) | 2.03c | 132 |
| Merchant bars | 1.39c | 6 17 6 | 1.40c | 560 | .96c | 535 | 1.69c | 110 |
| Structural shapes | 1.77c | 8 15 0 | 1.38c | 550 | .96c | 535 | 1.66c | 107.50 |
| Plates, †¼-in. or 5 mm. | 1.72c | 8 10 0 | 1.70c | 680 | 1.22c | 675 | 1.96c | 127 |
| Sheets, black | 2.02c | 10 0 0§ | 2.13c | 850‡ | 1.35c | 750‡ | 2.22c | 144‡ |
| Sheets, galv., corr., 24 ga. or 0.5 mm. | 2.53c | 12 10 0 | 3.63c | 1,450 | 2.61c | 1,450 | 5.70c | 370 |
| Plain wire | 1.77c | 8 15 0 | 2.83c | 1,130 | 2.34c | 1,300 | 2.73c | 177 |
| Bands and strips | 1.92c | 9 10 0 | 1.55c | 620 | 1.22c | 675 | 1.96c | 127 |

*Basic. †British ship-plates. Continental, bridge plates. §24 ga. ‡1 to 3 mm. basic price. British quotations are for basic open-hearth steel. Continental usually for basic-bessemer steel. a del. Middlesbrough. b Since January

# Construction and Enterprise

## New York

LOCKPORT, N. Y.—Ownership of the Covert Gear & Mfg. Co. has passed to an eastern syndicate at public sale. The buyer is understood to plan early reopening of the plant for production.

NEW YORK—Good Air Inc. has been incorporated with $25,000 capital to manufacture air-conditioning machinery, by Walter L. Post, 84 William street, New York.

NEW YORK—Springless Clamp Light and Metal Novelty Corp. has been incorporated with $10,000 capital to manufacture springless clamp lights and novelties, by Harry Sprinz, 17 Graham avenue, Brooklyn, N. Y., and associates.

NEW YORK—Tridex Machine Corp. has been incorporated with $100,000 capital to manufacture cleaning machinery, by Joseph A. Byrne, 551 Fifth avenue, New York.

SYRACUSE, N. Y.—Epstein Co., Syracuse, has bought the building formerly owned and occupied by the Globe Forge & Foundry Co.

## New Jersey

NEWARK, N. J.—M. C. Polishing & Plating Co. Inc. has been incorporated with 100 shares no par value to operate a plating and polishing business, by Samuel S. Ferster, attorney, 31 Clinton street, Newark, N. J.

PASSAIC, N. J.—New Hudson Iron & Metal Co. has been incorporated with $25,000 capital to operate a scrap iron and metal business, by Skolkin & Cohen, 700 Main street, Passaic, N. J.

UNION, N. J.—Owner, care J. Knecht, architect, 403 Ward street, plans construction of a 3-story oil refinery plant at the foot of Lockwood street, at cost of about $28,500.

## Pennsylvania

BLOOMSBURG, PA.—American Car & Foundry Co., New York, has notified city council it will build a modern mine car plant on the site of its burned plant. Time of beginning construction will depend on development of business conditions.

MEADVILLE, PA.—Plans will be ready about Sept. 15 for a 3-story and basement factory building here for the Hookless Fastener Co., Wilbur Watson & Associates, 4614 Prospect avenue, Cleveland, are architects.

## Ohio

CLEVELAND—Shapero Rag & Metal Co. has been incorporated with 100 shares no par value to operate a scrap iron and waste business, by William S. Rosenfeld, 824 Leader building, Cleveland.

CLYDE, O.—Assets of the bankrupt Vitrified Products Co. have been sold by the trustee, Scott W. Trump, Clyde, O., to William Dave and Martin Scott, Toledo, O., chairman and secretary of a bondholders' committee, for $23,500. It is planned to resell and open the plant for operation.

## Michigan

BENTON HARBOR, MICH.—King Equipment Corp., Second and Miller streets, has been incorporated with $2500 capital and 6600 shares no par value to manufacture machinery, by Malcolm S. Ross, Benton Harbor, Mich.

DETROIT—Sterile Washer Inc., 2288 First State Bank building, has been incorporated with 500,000 shares no par value to manufacture washing machines, by Charles F. Hemans, 17400 Roselawn avenue, Detroit.

GRAND RAPIDS, MICH.—Phoenix Sprinkler Co. has taken a contract in connection with a power plant for the W. B. Jarvis Mfg. Co., Grand Rapids, at about $15,000.

JACKSON, MICH.—DeVlieg Milling Machine Co. has been incorporated with 5000 shares no par value to manufacture machine tools, by Charles B. DeVlieg, 120 West Michigan avenue, Jackson, Mich.

## Illinois

CHICAGO—Benzo Junk Shop, 2306 Elston avenue, has been incorporated with 40 shares capital stock to deal in scrap iron and metals, by Samuel Koenigsberg, 1700 Metropolitan building, 134 North LaSalle street.

CHICAGO—Federal Auto Products Co. Inc., 1603 South Michigan avenue, has been incorporated with 300 shares capital stock to manufacture automobile supplies, by David Brandwein, 100 West Monroe street, Chicago.

CHICAGO—Flexell Co., 919 North Michigan avenue, has been incorporated with 1200 shares no par value to manufacture expansion joints, by Nusbaum, Damon & Sturman, 6 North Clark street, Chicago.

## Oklahoma

OKLAHOMA CITY, OKLA.—Sherman Machine & Iron Works has been incorporated with $17,000 capital to do general machine work, by W. S. Sherman and associates, Oklahoma City, Okla.

## Texas

LONGVIEW, TEX.—Carlisle Machine Works Inc. has been incorporated with $10,000 capital to manufacture machinery, by Claude Carlisle and associates, Longview, Tex.

## Wisconsin

MILWAUKEE—Kurth Malting Co., box 1176, has let a general contract to Stevens Engineering & Construction Co., St. Louis, for building 16 grain storage tanks and a headhouse 35 x 47 feet, costing about $100,000.

## Minnesota

MANKATO, MINN.—City plans to seek a federal loan to aid in construction of a power plant to cost about $400,000. Charles K. Mayer is mayor.

## Pacific Coast

LOS ANGELES—General Cable Corp., New York, is building a plant here at Ninth and Esperanza streets, to employ more than 100 workers. Its first output will be heavy copper cable for use in bringing current from Boulder dam to Los Angeles.

PORTLAND, OREG.—Plans are being made for two additional units for the local plant of the American Can Co. No date for bids has been set.


**Frank Samuel** *President* | **S. A. Cochran** *Vice Pres.* | **Snowden Samuel** *Sec'y. Treas.*

**FRANK SAMUEL & CO., Inc.**

**Harrison Bldg., Philadelphia, Pa.**

| Alloys | Pig Iron | Muck Bars |
|---|---|---|
| Ferro Manganese | Low Phos | Low Phos and Special |
| Ferro Chrome | English | The American |
| Ferro Silicon | French | Swedo Iron Co.'s |
| Calcium Silicide | | |
| Silico Manganese | | |

| Manganese Ore | Iron Ores | Chrome Ore |
|---|---|---|
| Open Hearth Use | | Lump |
| Blast Furnace Use | | Ground |

**Branch Offices:**

New York, 39 Cortlandt St. | Boston, Mass., 24 Alban Road | Pittsburgh, Tenth St. & Duquesne Way

# STATISTICS OF IRON AND STEEL INDUSTRY

Compiled by department of commerce, except: Unfilled tonnage by United States Steel Corp.; foundry equipment orders by Foundry Equipment Manufacturers association; river traffic by United States engineer at Pittsburgh; electric power by department of interior, geological survey

## Automobiles

Units Production —United States— Passenger cars

| 1932 | Total* | Canada Total |
|---|---|---|
| Jan. | 119,344 | 98,706 | 3,731 |
| Feb. | 117,413 | 94,085 | 5,477 |
| Mar. | 118,959 | 99,325 | 8,318 |
| April | 148,326 | 120,906 | 6,810 |
| May | 184,295 | 151,683 | 8,221 |
| June | 183,106 | 160,103 | 7,112 |
| July | 109,143 | 94,678 | 7,472 |
| Aug. | 90,325 | 75,898 | 4,067 |
| Sept. | 84,150 | 64,735 | 2,342 |
| Oct. | 48,702 | 35,102 | 2,923 |
| Nov. | 59,557 | 47,293 | 2,204 |
| Dec. | 107,353 | 85,858 | 2,139 |
| Year | 1,370,678 | 1,134,372 | 60,816 |
| 1933 | | | |
| Jan. | 130,044 | 108,321 | 3,358 |
| Feb. | 106,825 | 91,340 | 3,298 |
| March | 117,949 | 99,225 | 6,632 |
| April | 180,667 | 152,939 | 8,255 |
| May | 218,303 | 184,578 | 9,396 |
| June | 253,322 | 211,448 | 7,323 |
| July | 233,088 | 195,019 | 6,540 |
| 7 Mo. | 1,240,198 | 1,042,936 | 44,802 |

*Difference of total and passenger cars equals number of trucks. †Average monthly shipments, 1922-23-24 taken as 100.

## Fabricated Shapes‡

Net Tons Bookings: Tonnage; Per cent of capacity. Shipments: Tonnage; Per cent of capacity.

| 1932 | Bookings Tonnage | Bookings Per cent of capacity | Shipments Tonnage | Shipments Per cent of capacity |
|---|---|---|---|---|
| Jan. | 48,400 | 12.1 | 65,600 | 16.4 |
| Feb. | 62,000 | 15.5 | 78,000 | 19.5 |
| Mar. | 64,400 | 16.1 | 82,400 | 20.6 |
| April | 64,800 | 16.2 | 68,400 | 17.1 |
| May | 90,800 | 22.7 | 72,400 | 18.1 |
| June | 86,800 | 21.7 | 83,200 | 20.8 |
| July | 69,200 | 17.3 | 83,600 | 20.9 |
| Aug. | 78,800 | 19.7 | 85, 00 | 21.4 |
| Sept. | 111,200 | 27.8 | 90,800 | 22.7 |
| Oct. | 74,400 | 18.6 | 86,400 | 21.6 |
| Nov. | 51,600 | 12.9 | 76,000 | 19.0 |
| Dec. | 145,600 | 36.4 | 68,800 | 17.2 |
| Year | 948,000 | 19.8 | 942,400 | 19.6 |
| 1933 | | | | |
| Jan. | 73,679 | .... | 50,965 | .... |
| Feb. | 50,955 | .... | 46,168 | .... |
| March | 71,398 | .... | 54,948 | .... |
| April | 46,095 | .... | 50,387 | .... |
| May | 42,600 | .... | 63,968 | .... |
| June | 81,910 | .... | 64,809 | .... |
| July | ..... | .... | 50,973 | .... |
| 7 Mo. | 372,871 | .... | 382,218 | .... |

‡Figures by American Institute of Steel Construction, from January, 1933, 75 per cent of industry reporting.

## Fabricated Plates

Net Tons Bookings

| 1932 | Total | Oil Storage Tanks | Miscellaneous |
|---|---|---|---|
| Jan. | 17,613 | 4,783 | 12,124 |
| Feb. | 17,755 | 4,115 | 11,777 |
| Mar. | 12,564 | 1,161 | 10,022 |
| April | 14,074 | 1,406 | 11,167 |
| May | 11,788 | 2,310 | 9,356 |
| June | 18,383 | 2,808 | 10,209 |
| July | 12,485 | 3,661 | 6,586 |
| Aug. | 11,916 | 4,394 | 6,911 |
| Sept. | 11,013 | 3,753 | 6,801 |
| Oct. | 16,737 | 5,941 | 9,528 |
| Nov. | 7,873 | 1,446 | 6,065 |
| Dec. | 9,510 | 3,154 | 5,534 |
| Year | 161,810 | 38,976 | 109,085 |
| 1933 | | | |
| Jan. | 11,128 | 1,501 | 8,830 |
| Feb. | 16,588 | 8,347 | 7,660 |
| March | 8,903 | 1,270 | 6,787 |
| April | 9,502 | 2,938 | 6,291 |
| May | 16,243 | 2,858 | 8,183 |
| June | 39,958 | 20,894 | 13,951 |
| July | ..... | ..... | ..... |
| 7 Mo. | ..... | ..... | ..... |

## Railroad Locomotives

Units Shipments

| 1932 | Domestic | Foreign |
|---|---|---|
| Jan. | .. | .. |
| Feb. | 1 | 4 |
| Mar. | .. | 3 |
| April | 8 | .. |
| May | 13 | 2 |
| June | 17 | .. |
| July | 9 | .. |
| Aug. | 9 | .. |
| Sept. | 9 | 4 |
| Oct. | 10 | 2 |
| Nov. | 8 | .. |
| Dec. | 6 | .. |
| Year | 80 | 15 |
| 1933 | | |
| Jan. | 2 | .. |
| Feb. | 7 | .. |
| March | 2 | .. |
| April | 1 | .. |
| May | 1 | .. |
| June | 0 | 2 |
| July | .. | .. |
| 7 Mo. | 13 | 2 |

## Foundry Equipment Order Index †

| 1932 | |
|---|---|
| Jan. | 20.5 |
| Feb. | 27.6 |
| Mar. | 27.5 |
| April | 13.7 |
| May | 18.0 |
| June | 14.2 |
| July | 18.7 |
| Aug. | 18.6 |
| Sept. | 11.9 |
| Oct. | 23.2 |
| Nov. | 11.5 |
| Dec. | 16.5 |
| Year | .... |
| 1933 | |
| Jan. | 68.4 |
| Feb. | 16.1 |
| March | 9.8 |
| April | 19.4 |
| May | 25.7 |
| June | 45.5 |
| July | 48.6 |
| 7 Mo. | .... |

†Average monthly shipments, 1922-23-24 taken as 100.

## Malleable Castings

Net Tons: Output; Shipments; Orders booked

| 1932 | Output | Shipments | Orders booked |
|---|---|---|---|
| Jan. | 20,399 | 19,658 | 20,332 |
| Feb. | 19,834 | 19,432 | 17,808 |
| March | 17,844 | 19,392 | 16,235 |
| April | 15,461 | 16,847 | 16,185 |
| May | 16,597 | 18,075 | 16,463 |
| June | 15,018 | 16,450 | 13,330 |
| July | 9,447 | 11,359 | 8,658 |
| August | 6,804 | 8,631 | 7,776 |
| Sept. | 10,051 | 9,746 | 10,582 |
| Oct. | 12,274 | 11,615 | 12,850 |
| Nov. | 13,622 | 12,745 | 14,304 |
| Dec. | 14,128 | 14,366 | 14,504 |
| Year | 171,479 | 178,316 | 169,027 |
| 1933 | | | |
| Jan. | 12,577 | 14,248 | 12,404 |
| Feb. | 13,575 | 14,068 | 11,077 |
| March | 9,756 | 10,967 | 12,380 |
| April | 17,871 | 16,666 | 17,856 |
| May | 24,628 | 23,077 | 24,671 |
| June | 31,118 | 29,268 | 31,997 |
| July | 30,845 | 29,135 | 28,403 |
| 7 Mo. | 141,534 | 138,348 | 139,946 |

## Steel Castings

Net Tons: Total bookings; Total production

| 1932 | Total bookings | Total production |
|---|---|---|
| Jan. | 17,393 | 18,395 |
| Feb. | 17,015 | 18,759 |
| March | 16,593 | 20,433 |
| April | 12,801 | 17,474 |
| May | 11,342 | 14,463 |
| June | 12,765 | 12,839 |
| July | 9,301 | 11,460 |
| August | 10,147 | 12,331 |
| Sept. | 11,883 | 11,337 |
| Oct. | 11,896 | 12,480 |
| Nov. | 13,235 | 13,712 |
| Dec. | 13,283 | 13,886 |
| Year | 155,837 | 175,831 |
| 1933 | | |
| Jan. | 12,942 | 13,951 |
| Feb. | 11,857 | 12,438 |
| March | 11,458 | 13,209 |
| April | 14,507 | 12,071 |
| May | 20,782 | 19,072 |
| June | 32,026 | 27,300 |
| July | ..... | ..... |
| 7 Mo. | ..... | ..... |

## Mechanical Stokers

—Sales—: Fire tube boilers; Water tube boilers

| 1932 | Fire tube boilers | Water tube boilers |
|---|---|---|
| Jan. | 70 | 45 |
| Feb. | 63 | 26 |
| March | 60 | 23 |
| April | 80 | 15 |
| May | 41 | 30 |
| June | 65 | 48 |
| July | 70 | 44 |
| August | 99 | 38 |
| Sept. | 117 | 46 |
| Oct. | 96 | 21 |
| Nov. | 79 | 12 |
| Dec. | 78 | 20 |
| Year | 920 | 367 |
| 1933 | | |
| Jan. | 50 | 13 |
| Feb. | 33 | 22 |
| March | 67 | 17 |
| April | 26 | 31 |
| May | 52 | 41 |
| June | 137 | 50 |
| July | 105 | 67 |
| 7 Mo. | 470 | 241 |

## Steel Furniture

Dollars, 000 omitted: Business shipments; Shelving, shipments

| 1932 | Business shipments | Shelving, shipments |
|---|---|---|
| Jan. | 977 | 269 |
| Feb. | 807 | 229 |
| March | 780 | 259 |
| April | 753 | 190 |
| May | 653 | 196 |
| June | 671 | 177 |
| July | 521 | 155 |
| August | 543 | 141 |
| Sept. | 577 | 146 |
| Oct. | 622 | 142 |
| Nov. | 581 | 125 |
| Dec. | 610 | 135 |
| Year | 8,102 | 2,166 |
| 1933 | | |
| Jan. | 582 | 121 |
| Feb. | 464 | 104 |
| March | 482 | 137 |
| April | 404 | 133 |
| May | 511 | 166 |
| June | 636 | 165 |
| July | 522 | 156 |
| 7 Mo. | 3,604 | 986 |

## Babbitt Metal

Pounds 000 omitted: (a) Total production; (b) Sales

| 1932 | (a) Total production | (b) Sales |
|---|---|---|
| Jan. | 1,743 | 1,281 |
| Feb. | 1,577 | 1,142 |
| March | 1,595 | 1,188 |
| April | 1,419 | 1,060 |
| May | 1,345 | 947 |
| June | 1,319 | 858 |
| July | 1,275 | 870 |
| August | 1,319 | 994 |
| Sept. | 1,406 | 1,108 |
| Oct. | 1,573 | 1,192 |
| Nov. | 1,265 | 944 |
| Dec. | 1,149 | 823 |
| Year | 16,990 | 12,412 |
| 1933 | | |
| Jan. | 1,346 | 1,073 |
| Feb. | 1,117 | 917 |
| March | 1,134 | 941 |
| April | 1,544 | 1,270 |
| May | 2,110 | 1,785 |
| June | 2,327 | 1,877 |
| July | 2,484 | 1,941 |
| 7 Mo. | 12,126 | 9,808 |

(a) by 40 plants. (b) by 30 manufacturers who produce for sale, including 5 who also report consumption of own metal.

## Unfilled Tonnage

Tons United States Steel Corp.: Unfilled orders; Net change; Per cent change

| 1932 | Unfilled orders | Net change | Per cent change |
|---|---|---|---|
| Jan. | 2,648,150 | 87,203— | 3.19— |
| Feb. | 2,545,629 | 102,521— | 3.88— |
| March | 2,472,413 | 73,216— | 2.87— |
| April | 2,326,926 | 145,487— | 5.88— |
| May | 2,177,162 | 149,764— | 6.44— |
| June | 2,034,768 | 142,394— | 6.54— |
| July | 1,966,302 | 68,466— | 3.36— |
| Aug. | 1,969,595 | 3,293+ | 0.16+ |
| Sept. | 1,985,090 | 15,495+ | 0.78+ |
| Oct. | 1,977,040 | 11,950+ | 0.62+ |
| Nov. | 1,968,301 | 28,739— | 1.45— |
| Dec. | 1,968,140 | 161— | 0.01— |
| Year | ..... | ... | ..... |
| 1933 | | | |
| Jan. | 1,898,644 | 69,495— | 3.50— |
| Feb. | 1,854,200 | 44,444— | 2.30— |
| March | 1,841,002 | 13,198— | 0.70— |
| April | 1,864,574 | 23,572+ | 1.27+ |
| May | 1,929,815 | 65,241+ | 3.49+ |
| June | 2,106,671 | 176,856+ | 9.16+ |
| July | 2,020,125 | 86,546— | 4.10— |
| 7 Mo. | ..... | .... | .... |

*For public use

## Electric Power

Millions Kilowatt Hours Production*

| 1932 | Millions Kilowatt Hours Production* |
|---|---|
| Jan. | 7,567 |
| Feb. | 7,023 |
| March | 7,323 |
| April | 6,790 |
| May | 6,650 |
| June | 6,563 |
| July | 6,547 |
| Aug. | 6,764 |
| Sept. | 6,752 |
| Oct. | 7,073 |
| Nov. | 6,952 |
| Dec. | 7,149 |
| Year | 83,153 |
| 1933 | |
| Jan. | 6,932 |
| Feb. | 6,285 |
| March | 6,674 |
| April | 6,462 |
| May | 6,996 |
| June | 6,207 |
| July | ..... |
| 7 Mo. | ..... |

## Coke

Net Tons Production: By-Product; Beehive

| 1932 | By-Product | Beehive |
|---|---|---|
| Jan. | 2,100,923 | 87,900 |
| Feb. | 1,995,780 | 85,800 |
| March | 2,089,391 | 87,400 |
| April | 1,883,391 | 56,000 |
| May | 1,742,517 | 45,000 |
| June | 1,536,712 | 41,200 |
| July | 1,523,422 | 38,200 |
| Aug. | 1,473,904 | 40,700 |
| Sept. | 1,544,491 | 45,700 |
| Oct. | 1,738,716 | 67,600 |
| Nov. | 1,751,581 | 81,400 |
| Dec. | 1,786,085 | 95,600 |
| Year | 21,166,913 | 772,500 |
| 1933 | | |
| Jan. | 1,784,527 | 81,900 |
| Feb. | 1,638,817 | 84,100 |
| March | 1,666,035 | 93,300 |
| April | 1,656,183 | 47,000 |
| May | 1,921,257 | 47,300 |
| June | 2,241,432 | 50,100 |
| July | 2,797,316 | 68,400 |
| 7 Mo. | 13,705,567 | 472,100 |

## Steel Barrels

Units: Production; Shipments

| 1932 | Production | Shipments |
|---|---|---|
| Jan. | 359,685 | 352,135 |
| Feb. | 367,472 | 369,882 |
| March | 452,294 | 453,621 |
| April | 447,379 | 452,191 |
| May | 427,299 | 425,662 |
| June | 651,916 | 654,561 |
| July | 352,614 | 353,336 |
| Aug. | 362,993 | 360,509 |
| Sept. | 395,640 | 398,241 |
| Oct. | 422,637 | 417,490 |
| Nov. | 373,190 | 376,647 |
| Dec. | 300,570 | 307,372 |
| Year | 4,920,117 | 4,928,307 |
| 1933 | | |
| Jan. | 292,201 | 292,609 |
| Feb. | 269,755 | 272,432 |
| March | 373,340 | 371,945 |
| April | 401,086 | 402,506 |
| May | 465,418 | 467,695 |
| June | 572,851 | 568,437 |
| July | 555,402 | 552,923 |
| 7 Mo. | 2,930,055 | 2,928,547 |

## River Traffic

Net Tons: Allegheny; Monongahela; Ohio

| 1932 | Allegheny | Monongahela | Ohio |
|---|---|---|---|
| Jan. | ..... | 25,327 | 45,199 |
| Feb. | 2,200 | 20,089 | 40,737 |
| March | 550 | 32,234 | 33,254 |
| April | 501 | 23,849 | 32,972 |
| May | 2,550 | 23,941 | 28,267 |
| June | 3,611 | 18,291 | 27,306 |
| July | 1,400 | 13,677 | 22,895 |
| Aug. | 3,400 | 26,390 | 43,621 |
| Sept. | 1,200 | 18,831 | 28,557 |
| Oct. | 21,280 | 24,305 | 40,399 |
| Nov. | 23,225 | 29,851 | 45,735 |
| Dec. | 7,200 | 28,169 | 30,043 |
| Year | 67,117 | 284,954 | 418,990 |
| 1933 | | | |
| Jan. | 1,627 | 11,724 | 18,002 |
| Feb. | 1,656 | 17,904 | 23,614 |
| March | 425 | 19,546 | 32,917 |
| April | 3,025 | 35,795 | 37,191 |
| May | 4,400 | 39,890 | 46,038 |
| June | 815 | 58,179 | 56,484 |
| July | 3,900 | 68,453 | 62,096 |
| 7 Mo. | 15,848 | 251,501 | 276,342 |

# WHERE-TO-BUY

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The Carborundum Co., Niagara Falls, N. Y.
Norton Co., Worcester, Mass.

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Logemann Brothers Co., 3126 Burleigh St., Milwaukee.
Morgan Engineering Co., The, Alliance, O.

**ACETYLENE**
Linde Air Products Co., 30 E. 42nd St., New York City.

**ACIDS (Pickling)**
American Chemical Paint Co., Ambler, Pa.

**AIR COMPRESSORS—See COMPRESSORS (Air)**

**ALLOYS—See FERROALLOYS**

**ANGLES, CHANNELS—See BEAMS, CHANNELS, ANGLES**

**ANGLE IRON BENDERS**
Excelsior Tool & Machine Co., Ridge and Jefferson Aves., East St. Louis, Ill.

**ANODES (All Type)**
Udylite Process Co., 3953 Bellevue Ave., Detroit, Mich.

**ARBORS**
Morse Twist Drill & Machine Co., New Bedford, Mass.

**AXLES**
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 327 Carnegie Bldg., Pittsburgh, Pa.
Illinois Steel Co., 208 S. LaSalle St., Chicago, Ill.
Jones & Laughlin Steel Corp., Jones & Laughlin Bldg., Pittsburgh, Pa.
Republic Steel Corp., Youngstown, O.
Tennessee Coal, Iron & Railroad Co., Brown Marx Bldg., Birmingham, Ala.

**BABBITT METAL**
Cadman, A. W., Mfg. Co., 2816 Smallman St., Pittsburgh, Pa.
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**BALING PRESSES**
Logemann Brothers Co., 3126 Burleigh St., Milwaukee.

**BANDS—See HOOPS AND BANDS**

**BANDS (Iron and Steel)**
Acme Steel Co., 2840 Archer Ave., Chicago, Ill.
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 327 Carnegie Bldg., Pittsburgh, Pa.
Illinois Steel Co., 208 S. LaSalle St., Chicago, Ill.
Inland Steel Co., 38 So. Dearborn St., Chicago, Ill.
Republic Steel Corp. Youngstown, O.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.

**BAR BENDERS**
Kardong Bros., 346 Buchanan St., Minneapolis, Minn.

**BARGES (Steel)**
American Bridge Co., Frick Bldg., Pittsburgh, Pa.
Jones & Laughlin Steel Corp., Jones & Laughlin Bldg., Pittsburgh, Pa.
McClintic-Marshall Corp., Bethlehem, Pa.

**BARRELS (Plating)**
Udylite Process Co., 3953 Bellevue Ave., Detroit, Mich.

**BARS (Alloy)**
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Illinois Steel Co., 208 S. LaSalle St., Chicago, Ill.
Midvale Co., The, Nicetown, Philadelphia, Pa.
Republic Steel Corp., Youngstown, O.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.
Timken Steel & Tube Co., Canton, O.

**BARS (Concrete Reinforcing)**
Carnegie Steel Co., 327 Carnegie Bldg., Pittsburgh, Pa.
Illinois Steel Co., 208 S. LaSalle St., Chicago, Ill.
Inland Steel Co., 38 S. Dearborn St., Chicago, Ill.
Jones & Laughlin Steel Corp., Jones & Laughlin Bldg., Pittsburgh, Pa.
Republic Steel Corp., Youngstown, O.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.
Tennessee Coal, Iron & Railroad Co., Brown Marx Bldg., Birmingham, Ala.
Youngstown Sheet & Tube Co., Youngstown, O.

**BARS (Iron)—See IRON (Bar)**

**BARS (Steel)**
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 327 Carnegie Bldg., Pittsburgh, Pa.
Illinois Steel Co., 208 S. LaSalle St., Chicago, Ill.
Inland Steel Co., 38 So. Dearborn St., Chicago, Ill.
Jones & Laughlin Steel Corp., Jones & Laughlin Bldg., Pittsburgh, Pa.
Laclede Steel Co., Arcade Bldg., St. Louis, Mo.
Midvale Co., The, Nicetown, Philadelphia, Pa.
Republic Steel Corp., Youngstown, O.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.
Tennessee Coal, Iron & Railroad Co., Brown-Marx Bldg., Birmingham, Ala.
Timken Roller Bearing Co., The, Canton, O.
Weirton Steel Co., Weirton, W. Va.
Youngstown Sheet & Tube Co., Youngstown, O.

**BEAMS, CHANNELS, ANGLES, ETC.**
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 327 Carnegie Bldg., Pittsburgh, Pa.
Illinois Steel Co., 208 S. LaSalle St., Chicago, Ill.
Inland Steel Co., 38 So. Dearborn St., Chicago, Ill.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.
Weirton Steel Co., Weirton, W. Va.
Youngstown Sheet & Tube Co., Youngstown, O.

**BEARINGS (Ball)**
Bantam Ball Bearing Co., The, South Bend, Ind.

**BEARINGS (Bronze)**
Shenango-Penn Mold Co., Dover, O.
Shoop Bronze Co., 344-54 W. 6th St., Tarentum, Pa.

**BEARINGS (Journal)**
Bantam Ball Bearing Co., The, South Bend, Ind.
Hyatt Roller Bearing Co., P. O. Box 476, Newark, N. J.
Timken Roller Bearing Co., The, Canton, O.

**BEARINGS (Roller)**
Bantam Ball Bearing Co., The, South Bend, Ind.
Hyatt Roller Bearing Co., P. O. Box 476, Newark, N. J.
Timken Roller Bearing Co., The, Canton, O.

**BEARINGS (Thrust)**
Bantam Ball Bearing Co., The, South Bend, Ind.
Timken Roller Bearing Co., The, Canton, O.

**BENDING AND STRAIGHTENING MACHINES**
Alliance Machine Co., The, Alliance, O.
Kardong Bros., 346 Buchanan St., Minneapolis, Minn.
Logemann Bros. Co., 3126 Burleigh St., Milwaukee.
Morgan Engineering Co., The, Alliance, O.
Thomas Spacing Machine Co., Pittsburgh, Pa.

**BENZOL AND TOLUOL RECOVERY PLANTS**
Koppers Construction Co., 1301 Koppers Bldg., Pittsburgh.
Youngstown Sheet & Tube Co., Youngstown, O.

**BILLET CHIPPERS—SEE CHIPPERS (Billet)**

**BILLETS (Alloy and Carbon Steel)**
Alan Wood Steel Co., Conshohocken, Pa.
Carnegie Steel Co., 327 Carnegie Bldg., Pittsburgh, Pa.
Illinois Steel Co., 208 So. La Salle St., Chicago, Ill.
Republic Steel Corp., Youngstown, O.
Timken Steel & Tube Co., Canton, O.
Washburn Wire Co., Phillipsdale, R. I.

**BILLETS (Forging)**
Alan Wood Steel Co., Conshohocken, Pa.
Carnegie Steel Co., 327 Carnegie Bldg., Pittsburgh, Pa.
Illinois Steel Co., 208 S. LaSalle St., Chicago, Ill.
Jones & Laughlin Steel Corp., Jones & Laughlin Bldg., Pittsburgh, Pa.
Midvale Co., The, Nicetown Philadelphia, Pa.
Republic Steel Corp., Youngstown, O.
Timken Steel & Tube Co., Canton, O.

**BILLETS AND BLOOMS**
Alan Wood Steel Co., Conshohocken, Pa.
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 327 Carnegie Bldg., Pittsburgh, Pa.
Illinois Steel Co., 208 S. LaSalle St., Chicago, Ill.
Inland Steel Co., 38 So. Dearborn St., Chicago, Ill.
Jones & Laughlin Steel Corp., Jones & Laughlin Bldg., Pittsburgh, Pa.
Republic Steel Corp., Youngstown, O.
Tennessee Coal, Iron & Railroad Co., Brown Marx Bldg., Birmingham, Ala.
Timken Steel & Tube Co., Canton, O.
Youngstown Sheet & Tube Co., Youngstown, O.

**BLAST FURNACE SPECIALTIES**
Bailey, Wm. M., Co., 702 Magee Bldg., Pittsburgh, Pa.

**BLAST FURNACES—See FURNACES (Blast)**

**BLOCKS (Chain)**
Yale & Towne Mfg. Co., 4530 Tacony St., Philadelphia, Pa.

**BLOWERS**
General Electric Co., Schenectady, N. Y.
Strong, Carlisle & Hammond Co., The, 1394 W. 3rd St., Cleveland, O.

**BOILERS**
Murray Iron Works Co., Burlington, Iowa.

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Bethlehem Steel Co., Bethlehem, Pa.

**BOILER TUBES—See TUBES (Boiler)**

**BOLT AND NUT MACHINERY**
Landis Machine Co., Waynesboro, Pa.

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Bethlehem Steel Co., Bethlehem, Pa
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Oliver Iron & Steel Corp., S. 10th & Muriel Sts., Pittsburgh, Pa.
Republic Steel Corp., Cleveland, O.
Ryerson, Jos. T., & Son, Inc. 16th and Rockwell Sts. Chicago Ill.

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Continental Roll & Steel Fdry. Co., East Chicago, Ind.

**BOXES (Annealing)**
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Ohio Structural Steel Co., The, Newton Falls, O.
Truscon Steel Co., Youngstown, O.